

G.H. Briggs,
Librarian

A Report to the University

Carleton University
1976-77



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Report of the President

What happens to a university when it moves from expansion to a steady state, with the possibility of contraction around the corner? The actions taken at Carleton to cope with the cessation of growth constitute the main theme of this report. Briefly, we turned our attention in 1976-77 to quality and to the reinforcement of excellence; we combined our course offerings into new undergraduate programs to meet students' needs and preferences more effectively; and steps were taken to lessen the feeling of insecurity induced by impending contraction.

Quality

In the fall of 1976 our enrolment in graduate studies reached 1,000. We had reached the stage of maturity as a university where the quality of students we were attracting was higher than ever before and, under the leadership of the dean of Graduate Studies and Research, each department selected its graduate students with increasing care and rigour. Provincial policies, as well as demographic projections, made it clear that new programs would only receive approval under exceptional circumstances, and cherished plans for new ventures in doctoral studies had to be set aside for an indefinite future. In physics and in economics, to cite just two examples, discussions were under way to increase collaboration with the University of Ottawa at the doctoral level so as to broaden and enrich the programs of both universities.

During the growth period of the 1960s, Canadian universities launched themselves into new fields almost every year, and the qualities which differentiated one institution from another were blurred in the general expansion. Now students are choosing the university in which they enrol for special characteristics, and an institution that develops a reputation for a particular approach to academic life enjoys a significant advantage. Carleton, located in Canada's capital, has a world-wide diplomatic community at its doorstep. To Ottawa, each week, comes a flow of international visitors. We have attracted to our teaching staff a strong core of specialists in international relations and, in almost every discipline, professors who have had international experience. The development of international studies and of international links was therefore a logical step to take in attaining both distinctiveness and distinction for the university.

In 1975 the Paterson Centre was founded to give a focus to the international aspects of the university, and during 1976-77 its impact on the campus increased. As a result of an invitation to visit the University of Ife in Nigeria, the president and the chairman of the Department of Political Science negotiated a five-year exchange agreement in international relations. Subsequently, the chairman of the Department of Physics worked out a similar co-operative link in his discipline with Ahmadu Bello



University in northern Nigeria. Both these linkages are administered by the Paterson Centre. These ties, and other links which may follow with universities in other parts of the world, provide opportunities for our staff to broaden their own experience and to investigate new lines of research while assisting universities in developing countries to complete their own staff development. Graduate students from the exchange universities will pursue master's and doctoral studies at Carleton. Eventually, a two-way flow of staff and graduate students and a succession of joint research projects will, it is hoped, be achieved. As Carleton moves towards a period when places for new staff will be rare, such linkages will provide a refreshing variety of experience and background to our continuing staff and an entrée into international academic life for our students. There is no limit to the range of disciplines that may be involved in such links, and the involvement of many parts of the university in an international network can provide a vital replacement for the stimulus of growth which marked the 1960s.

In last year's *Report to the University*, mention was made of an effort to persuade the Government of Ontario to reconsider its decision to increase sharply the fees for new foreign students entering the country on student visas. Unfortunately, the policy remained. Carleton postponed the imposition of the new fee level until 1977-78 but expects that both the number and the place of origin of its foreign student body will be affected by the sharp rise

in fees. To mitigate the impact of these new charges, a Visa Student Bursary Fund was created and will be distributed during 1977-78 by the dean of Graduate Studies and Research and the dean of Student Services.

New Undergraduate Programs

Students in the 1970s look to universities to prepare them for specific careers. How wise they are in seeking training for jobs as the main component of a university experience is open to question, but the phenomenon is undeniable. To respond to this demand, Senate approved a program at St. Patrick's College in criminology and corrections. The program takes advantage of existing courses in sociology and psychology but arranges them in a coherent sequence useful for those who wish to follow careers in the field of corrections. Registration will begin in the fall of 1977.

Tying in with Carleton's development in international studies, the Faculty of Arts established a special program in English as a second language. The impetus for this innovation came from a decision of the Venezuelan government to fund fully fifty of their students preparing for study in Canada. The future of the program will depend on an assessment of the continuing demand for such training.

During the year, faculty boards studied the George Report on Continuing Education at Carleton. A consensus seemed to be emerging that we should build on the tradition of part-time studies which has marked Carleton since its earliest days. Dr. George's proposals included the development of off-campus instruction, and during 1976-77 an encouraging beginning was made with well-attended classes in the city centre and in suburban and Ottawa Valley locations.

Unionization

The trend towards unionization which had led to the certification of a faculty union in 1975 continued, and the Carleton University Support Staff Association signed its first collective agreement with the university on November 18, 1976. Carleton has reinforced its Personnel Office to cope with the new situation, and at the completion of Dr. G.R. Love's term as Carleton's first vice-president (academic), the university appointed him to the new post of director of Academic Staff Relations for a two-year term. As the university faces the stresses from funding limitations and declining student numbers forecast for the 1980s, it will benefit from the experience in collective bargaining accumulated during the current years.

People

Carleton's walls are still not ivy-covered, but we are beginning to say goodbye to some of the people who shaped the university in its infancy. Three long-time members of staff retired on July 1, 1977: Professor Munro Beattie of the Department of English; Professor M. S. Macphail of the Department of Mathematics; and Mrs. Jean Loates,

awards officer. Professor Beattie and Mrs. Loates received honorary degrees at the spring convocation, and both Professor Macphail and Professor Beattie were made professors Emeriti.

In other administrative changes, Professor Douglas Shadbolt, the first director of the School of Architecture, retired as director after nine years. He remains with us as professor of architecture. Professor R.A. Wendt's term as dean of Social Sciences came to an end and Professor T.J. Ryan was appointed to replace him.

The year 1976-77 was not an untroubled one at Carleton. Yet when I walked on to the campus on a bright fall day as term began, what struck me was not the difficulties our university faced, but rather the enormous vitality and strength we possess. This report attests to our liveliness and to the dedication of our staff and students to making Carleton a university of national and international stature.

M.K. Oliver

Report of the Vice-President (Academic)

The undertakings of the various academic support departments are outlined in a later section of this report. Beyond these activities, the administration of the academic sector of the university during 1976-77 was shaped by a major review of program planning, a bid for capital funding for much needed library space, a decision to increase student fees, a second round of negotiations with the Carleton University Academic Staff Association, a restructuring of the university's registrarial operations, and, finally, the appointment of a new vice-president (academic).

The review of academic departments conducted by the Senate Academic Planning Committee produced a final report that sparked a great deal of heated debate at Senate. Examining academic departments from the point of view of the university's academic program mix, relative resource allocation, and quality of programs, the committee reported to Senate that program planning at Carleton was in need of both streamlining and revitalization. A series of ten recommendations was made aimed at increasing the involvement of the departments and faculties in the planning process and defining the role of the committee as one of integration and co-ordination. The committee also recommended that departments be required to develop long-range plans covering five years for submission and discussion by their faculty boards in order to bring about a more orderly and more carefully considered kind of development than has, at times, characterized the university's growth in the past. In order to facilitate its own task of monitoring the university's academic development, the committee also recommended that a new series of indices be designed to focus more clearly whether the academic emphasis chosen by the departments is reflected in the pattern of their resource allocation, the degree to which the demonstrated instructional emphasis influences the departments' commitment to research and scholarly activities, the academic calibre of the students attracted, retained, and graduated, and the degree to which the administrative support provided by the university is consistent with the departments' workload in instruction and research. These indices would signal to the committee those departments where differences exist and the committee could, upon closer scrutiny, discern whether these differences were desirable or supportable. Other recommendations dealt with a reconsideration by faculty boards of some form(s) of a common first year, an assessment by faculties of the variation in section size across the university, and the development by departments of policy guidelines on the allocation of faculty and other instructional resources to the various modes of instruction, such as lectures, seminars, discussion groups, taking into



account the pedagogical concerns of the discipline. Senate approved the report in June, 1977.

Also approved by Senate were three undergraduate program proposals, two in mass communication and one in criminology and corrections. The latter was somewhat unique in that it is a program of study directed not toward a bachelor's degree in criminology and corrections, but rather a Bachelor of Arts in Psychology, Sociology, or Psychology/Sociology and with a transcript notation reading: "with a concentration in Criminology and Corrections." Other plans related to academic programs included the preliminary examination of a proposal for an institute of biochemistry and the experimental offering of a non-credit English as a second language program for visiting Venezuelan students.

The realities of financial constraints and changing ministerial policies in university financing imposed additional hardships on the university community during 1976-77. The university's bid to secure a much needed extension to the MacOdrum Library, while argued urgently and strongly, met with refusal, and during the year considerable debate and discussion was heard over the ministerial decision to require a differential fee structure for foreign students and the necessity for universities to increase the fees of Canadian students as well.

Changes to the current structure of the academic administration at Carleton involved a reorganization of the Registrar's Office and a reintroduction of two Senate committee's charged with responsibilities for space and

scheduling. The university registrar was appointed to a different post, that of assistant dean and registrar in the Faculties of Arts and Social Sciences, and all faculty registrars were then instructed to report directly to their deans. The reporting procedures of other administration offices formerly reporting to the university registrar were subsequently reorganized.

The period September to April also saw the university settling in to operate with unionized faculty, the machinery for contract administration grievances, and the preparations for the negotiations of the second collective agreement. In April formal negotiations were begun with the formal agreement being signed in December, 1977.

The 1976-77 academic year also completed my term as vice-president (academic). My successor, Dr. John Porter, of the Department of Sociology/Anthropology, is widely recognized for his work in the area of social class and power and is the author of numerous books and articles, including *The Vertical Mosaic*. His previous involvement with university affairs includes a term from 1963 to 1966 as director of the Social Sciences Division of the Faculty of Arts, the chairmanship of Senate's Academic Planning Committee during the 1969-70 academic year, and, during the period 1963-71, membership on the much respected research and planning committee of the Committee of Presidents of the universities of Ontario, including the chairmanship of that committee from 1969-1971.

G.R. Love

Report of the Vice-President (Administration)

The 1976-77 fiscal year was in financial terms a very successful one. Whereas the original budget for the year projected an estimated deficit of \$374,000, actual operations produced a surplus of \$377,000 in spite of a drop in student enrolment which was reflected in a drop in tuition income of 2.4 percent below budget. This result was due primarily to prudent management of funds throughout the university and to administrative attempts to cut costs wherever possible. The university's conservation program has been very successful and has resulted in significant cost reduction.

It must be remembered that a surplus of this size, while most welcome, represents less than 1 percent of the university budget for the year. Further, the accumulated surplus of \$818,528 as of April 30, 1977, represents about 1 3/4 percent of the 1976-77 budget. Neither should be regarded as being more than a small hedge against future deficits. What is encouraging, of course, is that given the prospect of continued financial pressure, prudent and careful marshalling of resources in all segments of the university has enabled us to operate in the 1976-77 year at what is essentially a break-even level.

Financial statements and surpluses or deficits are, of course, not the only measure of operational success. The level of financing has been very low. Considerable concern has been felt regarding the need to replace instructional equipment; the levels of maintenance of the buildings and furnishings and the replacement of building systems have also given concern. Capital funds have been provided for specific projects only, leaving the burden of replacements and major maintenance projects on operating funds. There seems to be little likelihood that the levels of financing which can be anticipated will improve prospects.

During the year the university continued to feel the added pressure on senior staff which came about as a result of the need to service collective agreements and the negotiation process. With first contracts behind, the load has diminished somewhat and will likely level off further in the year ahead.

The university enters the 1977-78 year with an accumulated surplus which will help ameliorate these conditions, as will the continued co-operation of the community in the management of resources.

A.B. Larose



Honours and Distinctions

Honorary Degrees

A. Munro Beattie (English), D. Litt., Carleton
E.L.M. Burns (Norman Paterson School of International Affairs), LL.D., Carleton
A. Davidson Dunton (Institute of Canadian Studies), LL.D., University of New Brunswick
Jean Loates (Awards Officer), Master of Arts, Carleton

Professor Emeritus, Carleton

A. Munro Beattie (English)
Patrick Cruttwell (English)
M.S. Macphail (Mathematics)

Royal Society of Canada Fellow

Vlastimil Dlab (Mathematics)
Kenneth D. McRae (Political Science)
H. Blair Neatby (History)
Gilles Paquet (Economics)

Order of Canada

David Lewis (Institute of Canadian Studies)

Academy of Humanities and Social Science Fellow

Frank G. Vallee (Sociology and Anthropology)

Canadian Psychological Association Fellow

Thomas J. Ryan (Psychology)

OCUFA Teaching Award

Peeter Kruus (Chemistry)

Congress of Socialist International Silver Plate of Honour, 1976

David Lewis (Institute of Canadian Studies)

Maryland Drug Abuse Research and Treatment Foundation Award

Peter A. Fried (Psychology)



Faculty of Arts

Dean's Introduction

It is impossible to mention all, or even most, of the noteworthy developments in the Faculty of Arts in 1976-77 without turning what should be a brief introduction into a lengthy catalogue, and without being needlessly repetitive of what is said in the reports from departments (summarized below). I have chosen therefore to comment on one permanent aspect of life in the faculty.

A unique feature of the Faculty of Arts within the university is its large number of small departments. Art history, classics, German, Italian, linguistics, music, and Russian all mount vigorous and ambitious undergraduate degree programs with seven or fewer full-time faculty members and little or no sessional lecturer assistance. Two of these departments (classics and German) offer the M.A.; two more (art history and music) sponsor graduate courses through the Institute of Canadian Studies; while another (linguistics) gives a graduate certificate program in the teaching of English as a second language. The problems of carrying out such ambitious commitments, if not unique to small departments, tend to be more acute and exacting.

Administrative requests and requirements are not appreciably less onerous than for larger departments. The difference is that, whereas in the bigger departments these duties can be generally shared among a large number of faculty members and support staff, in small departments they must all be carried out by the same few. The need for new ideas in the development of curriculum and recruitment of students is equally acute for small departments; but the imagination and energy must also come from the same few. The same few must also be able and willing to teach more and a wider range of courses in order to "cover the field" and give students an attractive choice. In the Department of Classics, for example, the normal teaching assignment is four courses; even five is not uncommon. Greek and Latin language courses are carried on a straight overload basis. (The willingness of the members of this department to shoulder such loads may in part explain why classics at Carleton has experienced a dramatic and consistent growth in enrolment over the past three years and is now the third largest classics program in Ontario.)

The same few must also be prepared to participate in the extracurricular student and community activities that tend to be more characteristic of the life of a small department than of a larger one. The report from the Department of Music offers an example here of the extraordinary demands being made upon (and in this case being superbly met by) one department of five faculty members. For the

smaller modern language departments, the problem faced is put succinctly by the chairman of German:

If the strain on teaching resources were to be intensified, something would have to give; it would not be possible to maintain the combination of a service role, major and honours programs, an M.A. program, the pursuance of publishable research, and the playing of a responsible part in the running of a democratic university. Nor is a retreat from standards any solution.

Because other faculties do not have small departments, these problems tend often to go unappreciated when budgets are being drawn up, instructional resources formulae devised, or promotions guidelines applied. Nor would amalgamation into larger administrative units, as is sometimes facetiously suggested, do much to economize on money or work, since most of the problems issue from the mounting of a sound and attractive disciplinary program rather than from the running of an efficient department.

Not that any quarter is being asked by these departments in their annual reports. By any measure the Department of Linguistics had a full plate of work when the last academic year began. That did not prevent it from seizing an opportunity to set up an intensive program in English as a second language to serve the needs of fifty students from Venezuela, many of whom were subsequently admitted to science programs at Carleton. Similarly, the response of the Departments of Art History and Music to the off-campus challenge has been emphatic and highly successful, while German, Italian, and Russian have shown much resourcefulness in their attempts to adapt their courses to the needs of students and other university programs.

The Faculty of Arts believes itself and the university the richer and stronger for the existence of its smaller departments.

James Downey

Programs and Policies

Art History

The department entered 1976-77 with a further increase in undergraduate enrolment of some 15 percent. This increase was particularly heavy in first, second, and fourth year with a slight slackening in third year. The pressure on fourth-year classes continued, as last year, to represent a particular problem with instructors having to cope with seminar classes that were greater than the desirable seminar size.

The department has moved its program offerings almost exclusively into half-courses. The primary purpose of this change was to ensure a wider and, at the same time, more substantial coverage of Western art history. In addition, the change also allowed the department to expand its offerings with limited staff and to help in spreading teaching loads and reduce the pressure of numbers in individual courses. The results with regard to the first has

generally been successful (although the work load for students and instructors is increased); with regard to the second, it has presumably had some beneficial effects, but a number of classes, at all levels, remain particularly heavily enrolled and staff resources do not allow for sectioning.

Having recast its program and course offerings two years ago, the department looks for consolidation of the program in the next few years. There will be the need to make adjustments in course offerings to take account of staff availability and to relate to the experience of running the program.

Through adjustments to regulations, the department is trying to tighten the requirements for major and honours students in order to ensure a more balanced program for each student and to gain greater control over regulating standards. It is foreseen that this will be an important element in departmental planning in the future.

The department foresees further significant developments in co-operative endeavours with other institutions. Connections with the National Gallery are already established on a substantial level but will be further pursued. A hitherto largely untapped potential for development lies in building direct and active contacts with nearby university art departments. Departmental planning will be directed towards establishing and furthering these relationships.

No new programs are under active consideration.

Classics

The 1976-77 academic year was an extremely busy one for the Department of Classics. Undergraduate student enrolment increased by approximately 37 percent. At the same time, the number of teaching staff was reduced by one full-time faculty member. With this increase the classics department had the third largest undergraduate student enrolment of all classics departments in Ontario, falling only marginally behind Toronto and McMaster, although it had, approximately, only a fifth of the faculty of the former and only half the faculty of the latter. The increase in student enrolment was largely to be attributed to the following factors: (a) the growing popularity of the classical civilization courses; (b) the introduction of full major and honours programs in classical civilization and combined majors and honours programs, in conjunction with the history department, in classical civilization (ancient history); (c) two half-courses offered off campus for the first time, in Rockcliffe, which proved very popular. As a result of this increase, the number of major and honours students in the department grew by about 100 percent.

Enrolment in the undergraduate Latin and Greek courses remained small, although there was a definite increase in the beginning language courses.

At the graduate level there was also an increase in

enrolment with four full-time M.A. students, whereas in previous years there had been no more than two.

During the fall of 1976, the department on its own volition had both its graduate and undergraduate programs appraised. Three distinguished academics from the Sorbonne, Yale, and Victoria were invited to make the appraisal. Although their reports were not of much help in solving the major difficulty confronting the department, namely, how best to man the large number of courses and programs offered by the department with its small complement of staff, the appraisers did much to reassure the department that the efforts that it was making in the area of teaching were worthwhile and deserved support from the university.

In view of the program innovations that were made in 1976-77 and the appraisal mentioned above, it is to be envisaged that the next few years will be a time of corroborating existing programs rather than embarking on new policies and lines of development.

Because of the increase in the number of students, most of the instructional aids category of the budget was spent on Xeroxing course material and none was left for the purchase of slides, films, and other needed materials.

English

The Department of English continued to devote most of its time to undergraduate instruction and to the reading, rereading, and reconsidering of primary texts—a *sine qua non* for good teaching in this discipline. As the extent and quality of this work cannot be either reflected in or assessed by student course-evaluation questionnaires—a fact which seems to be less than fully understood in certain quarters of this university—the department was heartened last year by the comments of knowledgeable external observers. In a Canada-wide review of undergraduate English programs, Carleton's undergraduate program measured up very well. The traditional emphasis which the department has placed on undergraduate instruction and on the research which feeds directly into it was also consistent with the recommendations of this discipline report.

This is not to suggest that research for publication was not also being carried out. Some thirty articles by members of the department were accepted for publication during the past year, many of them in the Canadian field, and another forty or so were in various stages between planning and submission. Work on various long-term research projects, including a linguistic atlas of the Ottawa Valley, was also in progress. Activities in the fields of medieval and Renaissance studies were numerous. The Carleton Renaissance Centre, under the direction of two faculty members, organized several interdepartmental colloquia and a successful meeting in the spring at the National Gallery on "Italy in the Sixteenth Century."

The centre also began to lay plans for a conference of the North Central Branch of the Renaissance Society of America to be held at Carleton in 1978. The Ottawa-Carle-

ton Medieval-Renaissance Society, which is likewise co-directed by members of the department, held its sixth annual conference last year while publishing the proceedings of the fifth. Plans were drawn up for a new interdisciplinary journal of late classical and medieval studies to be called *Florilegium* and published next year.

The department's proposal for a Ph.D. program in Canadian Literature was favourably assessed last year by an appraisal team from the Ontario Council of Graduate Studies and subsequently approved by the council itself. The first students in this program should be enrolled in the autumn of 1978.

A committee for academic planning was appointed by the department in 1976 to conduct a review of all aspects of the department's work and to make recommendations for future long-range development. The committee has not yet submitted its report, but it has been much concerned with the question of departmental priorities in the context of the university's repeated denial of promotion to several younger members of the department for want of sufficient publications. The department will have to decide, on the recommendation of this committee, whether or not it wishes to make available more time for research by adopting more economical modes of instruction at the risk of attenuating the quality of teaching.

The resignation without replacement of several members of the department meant another significant increase in the department's staff-student ratio.

French

In 1976-77 a further stage of the department's revised B.A. program was implemented with the introduction of the new second year (the final stage, consisting of the third and fourth years, is due to be implemented in 1977-78). The second year comprises several offerings in language and linguistics as well as a series of half-courses on different periods of French and French-Canadian literature. Furthermore, honours students can now concentrate, from their second year onwards, in either language/linguistics or literature.

The year brought further evidence of the continuing strong interest in language acquisition and practice classes, especially in the series of three courses (French 20.001, 20.011, and 20.108) designed for students specializing in other subjects. Thus, twelve parallel sections were given at the elementary, twenty-four at the intermediate, and fourteen at the more advanced level, with a total enrolment of about one thousand students. To ensure that the latter were directed to the class best suited to their linguistic competence, the department again operated a language placement test, which had to be administered in several sessions in view of the large numbers involved and the numerous late registrants. The department finally achieved its long-standing objective of reducing the size of these classes to a maximum of twenty. It is hoped that this figure, which is still rather high for language teaching, can be further lowered in the near future, but the realiza-

tion of this hope will, of course, depend on the funds placed at the department's disposal for the appointment of part-time instructors. As a result of arrangements made during the year under review, these language classes, which utilize audio-visual and audio-oral techniques, will henceforth be given entirely in rooms specially equipped for this type of instruction, located mostly within the language laboratory complex. The department continued to monitor the effectiveness of the methods used, and various changes were made in the lessons with a view to adapting them as closely as possible to the needs of the students. One section of each course was again reserved for university faculty and support staff.

In addition to the above-mentioned courses which provide practice in speaking and writing French, the department ran a first-year half-course, French 20.106*, *Reading French*, designed to enable specialists in other fields to acquire a certain competence in reading technical texts in French. Members of the department also graded language tests set in some other departments. Finally, the well-attended meetings of the "Club francophone" testified to the widespread interest that exists among students in opportunities for participating in conversations in French held in an informal setting.

The year 1976-77 also saw the inauguration of the exchange of students with the Université du Québec at Trois-Rivières. Three students were officially sponsored by each university for attendance at the other institution throughout the fall and winter terms. Initial reactions have been favourable. In the spring two professors from Trois-Rivières visited the department to review the situation and, at the same time, to discuss the possibility of an exchange of faculty. Both sides expressed their interest in the idea which will be further considered during 1977-78. As for the exchange of students with the Centre Universitaire de Savoie at Chambéry, France, this became temporarily a unilateral arrangement in 1976-77, since the difficulty of obtaining substantial financial support from their own authorities prevented French students from coming to Canada.

Many more students could be accommodated in the existing major and honours programs. The decrease over the past few years appears, however, to have been partly compensated for by a higher overall quality, if one is to judge by the 1976-77 graduates. With very few exceptions, the honours students were awarded high second-class or, in many cases, first-class degrees, while several majors achieved "Distinction."

German

Since 1974 the full-time strength of the department has been down to six; however, in 1976-77 none of the six was away on sabbatical leave, which made for a year without major staffing headaches. The work of the department proceeded at its six levels of instruction (from German for beginners to the rather demanding M.A.) and in

literary and linguistic research; at the same time members of the department continued to play an active part in a number of university bodies.

The largest enrolment in the German department's range of courses remained, as always, in the language area, and the department continued to devote a large part of its full-time faculty resources to this aspect of its work, ably supported by a handful of gifted part-time instructors. Among literature offerings, the department continued to strive for a balanced selection, bearing in mind the breadth of the field, the interests to be satisfied, and the resources available. The core period, the decades around 1800 (the Age of Goethe), continues to be well represented, without neglect of the centuries before and after; among new courses, one on the literature of East Germany was successfully repeated.

In the German department's M.A. program, 1976-77 was noteworthy for the completion of the department's first research essay, "L'Amérique et *Amerika* de Franz Kafka," and for the first thesis to be awarded the grade "with Distinction"; the thesis was entitled "Some aspects of balladesque art and their relevance for the novels of Theodor Fontane." Other M.A. student projects (research essay and thesis) currently in hand relate to the medieval, baroque, romantic and post-romantic periods, and to twentieth-century language.

Though there has been some feeling within the German department in recent years that the additional option of a combined M.A. (with French, for instance) should be explored, the times are hardly propitious even to inventive redeployment of existing resources once the bogey of "a new graduate program" looms.

On the undergraduate front, no new programs are at present on the drawing board, but ideas are certainly stirring. There is, for example, the "empirical approach" beginners' course, German 22.017, scheduled for a rerun in 1978-79; the current expansion of research and teaching in the analysis of twentieth-century developments in the German language; the department's continuing concern with links between language and literature on the one hand and music and the visual arts on the other hand; and the 200-level course for non-germanists which originally focused on *Doktor Faustus* and is currently undergoing preliminary planning with a view to a new version (again for 1978-79) with the focus on Austria.

Given the climate of general and continuing squeeze, 1976-77 was itself a tolerably good year, but it looks like an exception. There are grounds for concern with respect to section size, particularly in the more oral of the language-acquisition courses. A long-standing worry which is likely to get more acute is the provision of reasonable offerings for part-time students beyond the 100 level; indeed, even for full-time students the choice at the 300 and 400 level is restricted to about the limit of what is tolerable. If the strain on teaching resources were to be intensified, something would have to give; it would not be possible to maintain the combination of a service role, major and

honours programs, an M.A. program, the pursuance of publishable research, and the playing of a responsible part in the running of a democratic university. Nor is a retreat from standards any solution.

History

The year 1976-77 was essentially one of stock-taking and planning rather than one of new departures. Interest in the study of history, especially Canadian history, seems to be as healthy as ever. Prompted by faculty changes, the Canadian graduate program has been given a shift in focus: while continuing its strong interest in pre-Confederation history, the emphasis will be increasingly on post-Confederation and regional history, areas of increasing professional interest. A new appointment will enable the department to expand its scope in the history of the Maritimes as well as providing further strength in urban history. Final approval was received for the new, non-thesis M.A. program in areas outside Canadian history. This will make it possible for students to receive a degree without a concentration in the history of any one country and has also widened graduate offerings with research seminars in American, British, and medieval history. Students for this program will be registering in the fall and should increase the numbers in and improve the balance of the M.A. program.

A major re-examination of the undergraduate curriculum has begun, especially the first-year course offerings. The recent faculty losses in the European area are making some rethinking of departmental offerings in European history necessary, while increasing pressure of student numbers is making a re-examination of the Canadian history equally pressing. In particular, the large survey course in Canadian history (History 24.230) is under review. A reorganization of this introductory course is desirable to cater more specifically and immediately to each of its various constituencies and to overcome some of the problems associated with a large monolithic course.

Student enrolment this year exhibited some change from the pattern of recent years. The steady increase in the number of third-year students finally reversed itself but was accompanied by a modest increase in second-year students and a large increase in the first year. Despite the gloomy forecasts, the number of doctoral students increased again.

Departmental plans for the next four years differ little from last year; their chances for fulfilment, however, appear increasingly remote. The consolidation of the doctoral program and the development of the expanded master's programs remain the goals at the graduate level. It remains to be seen what impact the recent changes in graduate financing will bring. Both recent and anticipated losses of faculty, as well as evidently changing patterns of student interest, will continue to require a thorough review and unavoidable alteration of undergraduate course offerings. Unfortunately, owing to budgetary stric-

tures, the inability of the department to fill its vacant positions means that hopes of moving into new and promising areas will have to be postponed once more, if not abandoned for the foreseeable future, particularly since current university policy discourages faculty members from moving into new fields. Departmental plans for courses in Latin American and African history will be particularly affected. The temporary position in Russian history, however, has made it possible to hold the line in Russian and Asian history this year and next.

Italian

The unique strength of the department is represented by the course for *dialettofondi* and was represented by summer courses in Italy which were offered in the summer of 1976 but were cancelled for the summer of 1977.

No expansion is foreseen for next year. The department would like to restructure a few courses, launch a program perhaps in the Italian community. Plans for the next five years will be discussed in next year's report.

A possible restructuring of full courses into half-courses is being considered. All decisions, though, have been postponed until next year.

As a result of the restricted 1976-77 budget, two sections of Italian 26.105, *Intermediate Italian for Dialettofondi* were joined for two hours to two sections of 26.100, *Intermediate Italian*, and the course on the Italian heritage, 26.210, was not offered. Summer courses in Italy were not offered, as mentioned above. As a result of budgetary cuts in part-time help, the department is offering only one section of Italian 26.105 in 1977-78 and has cancelled one course at the 400 level.

Linguistics

In addition to its primary task of instruction in linguistics, the department engaged in three basic activities during the academic year: publication of the papers of the Algonquian Conference; research in the linguistic survey of the Ottawa Valley; and English as a second language for Venezuelan students.

The Algonquian Conference is an annual scholarly meeting that takes place in the fall. The papers were edited and typed in the linguistics department, and the finished volume was published in June. The linguistic survey is a five-year project to investigate the English dialects spoken in the Ottawa Valley. During the year more field work was undertaken, and analysis of the data began resulting in a paper read at the Learned Societies meeting in June. In October a new intensive program in English as a second language was initiated to serve the needs of fifty students from Venezuela. The program, designed to prepare students for academic work in Canada, consists of a series of five full courses, with a number of short courses and laboratory modules scheduled according to student need. Such programs are not numerous in Canada; accordingly, a good deal of curriculum development

was undertaken, especially for the advanced levels. Research in the area of language teaching and learning is an ongoing activity of those working on the program.

It is probable that English as a second language will assume a larger role in the departmental plans and policies in the next few years, either by expansion and diversification of the intensive program to include non-Venezuelans, or by the elaboration of the regular non-credit course in English as a second language, or both.

Music

In 1974-75 the Department of Music instituted a completely revised and enriched course of instruction, including the addition of credit instruction in performance. The department has viewed this third year of the new program (1976-77) as a period of consolidation and stock-taking. Even though it continues to grow at a fairly rapid pace (20 percent increase in majors and honours over 1975-76), the department had felt the need to reflect, with an eye to ever-increasing emphasis on quality, perhaps at the expense of continued innovation for the time being.

The following significant developments in 1976-77 were noted:

1. Expansion of off-campus courses: Music 30.100, *Introduction to the Music of Western Civilization* at Gloucester High School and Music 30.201, *The Vocal and Church Literature of Western Music* at Sir Robert Bordon High School; this reflects the department's firm commitment to community work and adult education.
2. Continued success with the recently established (1975-76) "Tuesday Night" colloquia, with the addition in 1976-77 of evening student concerts in faculty homes.
3. The formation of a collegium musicum and a madrigal society; this welcome activity is a most valuable adjunct to medieval/Renaissance studies and it has been given every encouragement, including a substantial budget for the acquisition of historic instruments.
4. The formation of a student wind quintet which performed regularly and was awarded a second prize in the Ottawa Music Festival.
5. The formation of the Carleton University New Music Group, a student-run organization devoted to the performance of new music by established avant-garde composers and student composers, especially those enrolled in Music 30.360, 30.362, and 30.460; this group gave a successful performance at Ottawa's SAW Gallery which was favourably reviewed by the local press, and it provided an impressive "happening" in the music department involving local high school students as part of the Faculty of Arts high school hospitality day.
6. The winning by a second student of a Netherlands government scholarship for post-graduate study in the Institute of Sonology, Utrecht; this highly competitive award has gone to a Carleton student for the second successive year.

7. Successful in-house performances of Stravinsky's *Symphony of Psalms* and Poulenc's *Gloria* by the Carleton University Choir under the direction of a faculty member.
8. Continued success of the now firmly established Noon-Hour Concert series, including increased use of distinguished visitors.

The department continues to believe that it should aspire to grow and develop in the areas of Canadian studies, composition, and electronic music, since it is necessary to encourage the growth of Canadian studies, given the unique and varied resources available at Carleton and in the capital region.

With a second new appointment for 1977-78 in theory/composition, the department hopes to realize the ambition over the next half decade of establishing a significant centre for the training of composers and musical theorists. It is felt that this has been a somewhat neglected aspect of the program and that it must be encouraged to flourish. The existing program, built largely around the electronic studio, has planted the seeds of what could in time become a significant centre of creative composition in Canada.

The department has not actively sought new programs for 1976-77 in view of the radical refurbishing which began in 1974-75. Perhaps the most apparent change has been the accelerating shift away from the ubiquitous "survey" course toward courses of a more specialized nature. Music 30.455, a course in advanced analysis, was given for the first time in 1976-77 in response to the realization that many senior students were somewhat deficient in advanced analytical skills. This course, which involved an in-depth analysis of a small number of musical works, allowed the student to apply the accumulated skills and knowledge of three years and more in a practical musicological situation. Similarly, the department has expanded its offerings under Music 30.320* to 30.329*, *Specialized Studies in Selected Topics*, with the notion that third- and fourth-year honours students especially should have an opportunity to come in contact with each faculty member's research interest in graduate-like seminar situations.

Because of rapid and unexpected growth in the demand for performance instruction, the 1976-77 budget fell short of departmental needs by over \$6,000. With an additional grant of that amount, the department was able to cover basic operating costs. However, the 1976-77 budget did nothing to alleviate what is felt to be a genuine need for a considerably larger physical plant, and here the department would refer to the report, "Analysis of Available Space and Projections for Future Needs," submitted to the administration on May 9, 1977.

Philosophy

The department's undergraduate enrolment rose by more than 10 percent this year, following an increase of more than 15 percent in 1975-76. In accordance with plans for a more distinctive set of offerings at St. Patrick's

College, three courses were given there for the first time, one of them an ingredient of the new B.A. program in Canadian Studies. On the Rideau River campus two new courses were given, including Philosophy 32.284*, *Society, Value, and Technology*. The department taught its first off-campus course—at Carleton Place. The enrolment was encouragingly high and the course seems to have been well received.

Attention was given during the year to a developing problem of content overlap among some of the introductory courses, and it is hoped that satisfactory solutions have now been found. In accordance with a policy of involving most members of the department in first-year teaching and of offering beginning students the greatest possible variety of approaches to philosophy, the department will probably soon propose one or more new first-year courses. It is planned also to increase, if possible, the department's involvement in Canadian studies.

Concern has been felt at the slow rate of thesis completion by some of the department's M.A. students, and partly because of this, a one-credit research essay has been introduced which, together with an additional seminar or tutorial course credit, will become an optional alternative to the two-course credit thesis. However, while it is expected that a number of students will find this option better suited to their needs, it is hoped that most will prefer the thesis option.

Because no members of the department were on leave this year, budgetary constraints affected its operation less than might otherwise have been the case. The different situation for 1977-78 caused the department to be faced with some difficult choices. The eventual decision was to continue offering an off-campus course, as well as to allow some participation of faculty in courses offered by other departments, and to do so at the cost of leaving certain philosophy courses unoffered for two or more consecutive years. Shortage of faculty also means that the department cannot staff, as it would like to, a separate spring-term first-year class or seriously consider offering courses primarily for part-time students.

Religion

As in previous years, the energies of the department have been engaged principally in undergraduate instruction. Undergraduate enrolment (844 including St. Patrick's College) was about the same as last year in both size and distribution. Two new half-courses on selected topics in religion (34.236* and 34.237*) were introduced and met with an enthusiastic response.

A two-day symposium was arranged for sixteen New Testament scholars from Canadian universities which was extremely successful, judging by the letters received from the participants, and did much to enhance the reputation of the department and the university.

Two additional off-campus courses were offered in 1976-77, in the summer at Carleton Place and in downtown Ot-

tawa at noon in the winter. The former was an outstanding success (enrolment 120) and a second course is being offered there this summer. It is planned to continue the department's involvement in off-campus courses in the future.

Russian

The Department of Russian chose a member of the English department as a new acting chairman for a two-year term. Although the choice of a chairman from outside the department may have some disadvantages, it is hoped that the perspective from outside may offer unique benefits to the department and that the department's relation to other units of the university may be enhanced.

The department has reviewed the introductory Russian courses and is continuing to look at the details of its course offerings. The effectiveness of the Slavic language tutorials is a matter of concern because of the heavy demands these tutorials make on teaching commitments. The high enrolment in Russian 36.110, *Russian for Scientists* is gratifying, and the department intends to continue this important service to the university and the community.

The department has had over the years congenial relations with the Institute of Soviet and East European Studies and has actively participated in its program. It looks forward to co-operative involvement with the Patterson Centre for International Affairs, particularly in the exchange programs administered by the centre.

Spanish

The department's Intensive Spanish Program (first term) and the Winter Program Abroad (second term in Spain), unique in Canada, continue to be quite successful and may be regarded as the department's distinctive activities.

In the area of program and course planning, the Department of Spanish is considering the introduction of a first-year course on some aspect of Hispanic civilization, to be given in English. Such a course would enable the department to serve a wider sector of the university and might ultimately attract more students to the study of Spanish language and literature. Also, the course could be introductory to a Latin American studies program. The department intends to urge once again that a Latin American studies program be established at St. Patrick's College—mainly by co-ordinating courses already offered by the Departments of Spanish, History, Geography, Economics, and Political Science. A proposal for a Ph.D. program in Spanish at Carleton, set aside a few years ago when the government was about to place a "provisional embargo" on new graduate programs, may be reintroduced.

The department's established policy of giving conversation courses abroad every summer was peremptorily

suspended for the summer of 1977 because of budget restrictions. Since these courses elicit much interest and serve a definite purpose in the department's program, it is hoped that the suspension will be limited to this one summer.



School of Journalism

The most notable activity of the school in 1976-77 was its proposal for the initiation of honours and major B.A. programs in Mass Communication. Mass communication is so imbedded in modern society as to be one of its defining characteristics, and the major goal of the programs is to promote the development of a teaching and research tradition in this field in Canada. Over the years mass communication studies has been a component of the journalism program; it has now been formalized and intensified to satisfy the rigorous demands of a degree program. Mass communication studies cannot be properly located within any single academic discipline. In addition to journalism, it embraces the concerns of the various social science and arts faculties, and to guide the management and curricular activities of the programs, a joint committee has been established. This committee at present is composed of faculty members from the School of Journalism and the Department of Sociology and Anthropology. The school has proposed that the programs be

implemented in 1978-79, and if approved by Senate, the B.A. in Mass Communication will be the first offered in Canada.

The Master of Journalism program, designed to give students advanced training and to stimulate the intensive analytical and research activities in the school, granted its first three degrees last year. While the program is not large, this was a deliberate policy to sacrifice quantity in favour of accepting only students with superior credentials. Thus, it is satisfying to be able to report that two of the first three theses have been accepted for publication by Canadian publishers. However, despite the rigorous entrance requirements, the program now has fourteen students with another fifteen in the qualifying year. Agreement and procedures have also been reached whereby a graduate student in Canadian studies can undertake a program in mass communication research and theory with the bulk of his courses selected from the graduate offerings in the school.

As usual, the one-year honours B.J. program for students who enter with a degree was filled to its capacity, and the level of prior academic achievement of those accepted was the highest ever. This was also the situation for students in the four-year program accepted into the second year. The initiation in 1976-77 of a policy that does not guarantee continuation below a B- average in the first year increased the places available for worthy students transferring from other universities, as well as generally raising academic standards in the program. Recognizing that this change in policy would increase attrition from the first to second year, the school was able to increase by about thirty the first-year enrolment.

In keeping with the professional, theoretical, and research development of the school, several other activities must be noted. The *Carleton Journalism Review* published its first issue in March. Response to this new review by professional journalists and academics was very encouraging. Reviews and letters have been favourable. In addition to numerous journal articles, several members of the faculty were engaged in writing monographs and one published a book, *The New Society*. A seed grant from the university permitted the establishment of the Carleton Journalism Poll, a vehicle for in-depth analysis of Canadian opinion on public issues. This survey/research team, consisting of social scientists and journalists, will provide a penetrating analysis of reactions to events and will function both as an instrument for theoretical research and as a basis for in-depth journalism. It is anticipated that the service will become financially self-sustaining through subscriptions to the media industry, which gave good coverage to the group's analysis of both the Carleton West by-election and the last Liberal National Policy Conference.

Another year of economic retrenchment left the school with fewer student assistantships than was desirable and thus larger than optimal tutorial group sizes in some courses. Some other activities were either curtailed or suspended. The training of group leaders for the large

first-year courses was greatly reduced with educational effects sufficiently detrimental that steps have been taken to ensure that these will not be repeated. The student exchange program for senior students was suspended.

Institute of Canadian Studies

The Institute of Canadian Studies had the busiest year since it was established in 1957. A record total of 100 graduate students registered in different categories was achieved, with 40 of them in a full-time M.A. year. With the publication of nine additional titles, the Carleton Library became a series of 109 volumes.

The individual interdisciplinary programs developed by students included an extremely wide variety of areas, from a combination of sociology and literature to studies of native peoples. Students again came from a wide diversity of backgrounds and from all regions of Canada. Three American students contributed substantially to discussions. Much attention during the year was given to problems of Canadian duality. The rise in applicants with strong academic backgrounds of the kind required for the institute seemed to indicate a steadily growing interest in Canadian studies of an interdisciplinary nature.

The one course provided by the institute itself, the interdisciplinary seminar, which is taken by most of the students, was again large. The problem was met in the main by dividing the class into two groups for most discussions.

During the winter study break, a week-long visit to Washington by a large group of students brought new perspectives of Canada to the participants.

The Carleton Library series took its place more and more firmly as a major Canadian-published series of broad value to university people and interested members of a wider public. It now includes a great range of works dealing with the history, society, and institutions of Canada, many of them reprints of classic works, and also others, increasingly, that are originals. The series is published through an association with the publishing house of McClelland and Stewart, although all the editorial work is done at Carleton. As in all its work, the institute must depend heavily on the help of people in other departments, and the general editor relies much on the collaboration of the faculty members on the editorial board who make the series possible.

At the end of the year there were indications of further pressure for the institute to grow as interest in Canadian subjects and in interdisciplinary approaches continues to increase. The ability of the institute to meet such pressures will depend on the sustained co-operation of other departments in providing courses and supervision. So far all the necessary assistance and interest has been forthcoming generously, and signs for the future are good.

The major research project on the history of the CCF and NDP parties progressed well during the year with the support of a substantial Canada Council grant.

Committee on Film Studies

The 1976-77 academic year was the first year of operation for the film studies program. It was felt to be an enormously successful year by students and faculty alike. The first full-time academic appointment was made in film studies, and with one transfer appointment, two cross-appointments, and two sessionals, a total of six instructors shared the teaching responsibilities. Four courses were offered: Film Studies 19.100, *Introduction to Film Studies* at the first-year level (with two day division sections and a section in the evening); Film Studies 19.268, *Forms and Conventions of the Cinema*; Film Studies 19.333, *Film and Society*; and Film Studies 19.368, *Critical Problems, Theory, and Aesthetics*. Maximum enrolments were achieved in all courses, but especially heartening was the immediate declaration of the intention to major in the field on the part of some twenty students, a group which had doubled by the spring of 1977.

The Film Study Centre was established as a resource for students and equipped with books, serials, works of reference, and vertical file materials; over the course of the year an imprints policy was worked out with the Humanities Division of the MacOdrum Library. The film studies committee also began the acquisition of a modest collection of films for purposes of study and research. Projection equipment was high on the list of priorities and a variety of 16 mm projectors was purchased, as well as a Steenbeck editing table to be used for independent film study. The purchase of this equipment should meet anticipated needs over the next two years at least.

In 1977-78 two new courses will be added to the film studies program, both at the second-year level. One will be a course in the documentary film (Film Studies 19.210), which will be offered in the evening division so that part-time and special students may continue beyond the first year. The second new course, Film Studies 19.240, *The Directors*, will be offered in co-operation with the services of the National Film Theatre of Canada at the Public Archives, and it is hoped that this relationship may be an enduring one with that important body. Next year it will also be possible for film studies major students to undertake an independent research project (Film Studies 19.399) with the supervision of a member of the faculty. With the addition of these offerings, the committee looks forward to graduating the first class of Carleton students with a major in film studies in the spring of 1978.

A new faculty appointment is also to be made for 1977-78, and during that year two members of the teaching staff will take sabbaticals to do research in film. It is expected that additions will be made to the film collection as well as extending the holdings of the resource centre. However, if the resources in which the committee has invested are to be utilized efficiently, the committee feels that there must be some improvements made to the theatres on campus currently used for film screenings.

Developments over the next few years will be closely linked with the success of the program. During 1978-79

it is planned to introduce the remainder of the undergraduate courses that have been prepared for implementation through the initial three years of operation. To make this possible, one further faculty appointment will be required. This achievement will round out the first phase of curriculum design at eleven courses, all closely integrated into a coherent program touching upon the essential aspects of study within the committee's conceptual framework. By that time the committee expects to have a significant collection of films and excellent library holdings. As the existence of Carleton's degree in film studies becomes more widely known, the program can expect to attract many more students to the university. Should the committee's greatest hopes materialize, it may want to start thinking of the possibility of an honours degree in film studies.

Committee on Comparative Literature

In late 1975-76 and early 1976-77, two events took place which have had and will continue to have considerable influence on the program of comparative literature. Two senior faculty members resigned from the committee and the university to take up permanent positions in comparative literature at McGill and the Université de Montréal. Despite their being only one-third appointments in comparative literature, the loss is considerable, though it is to a certain extent reduced by the acceptance of each to become adjunct professor of comparative literature whereby they will continue to be associated with the program.

Comparative literature is currently searching for a distinguished senior professor to fill this gap but, despite the excellence of a number of candidates, has not yet found that person who truly corresponds to the present and future needs of the program.

The second event was the completion of four external assessments requested subsequent to the aforementioned two resignations. The assessments vary, of course, but, even taking into account constructive criticism in detail in two of them, are uniformly supportive of the committee's program. Three recommend expansion into doctoral work; the fourth is against this idea in principle because of future limited possibilities of employment (that is, his recommendation is not a reflection on Carleton's program and resources).

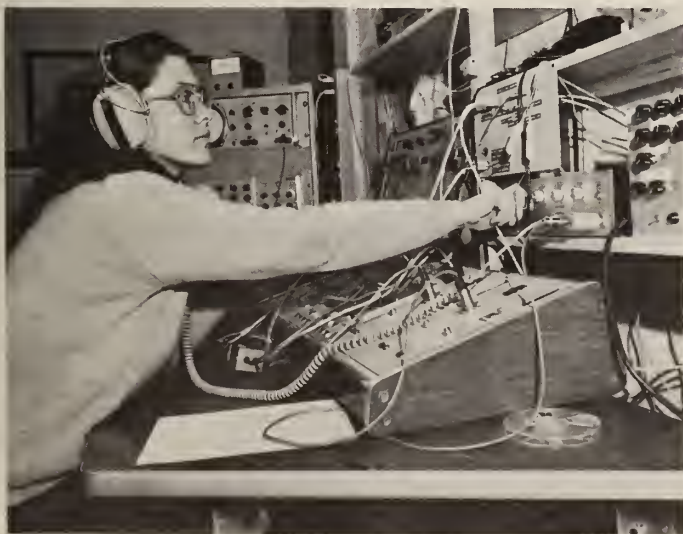
Principal activities other than teaching and research have included considerable discussion as to the future of the program and several public lectures on those Western literatures not taught at Carleton.

The planning committee in the spring of 1977 forwarded to the Arts Faculty Board Planning Committee a proposal for a sequence of three undergraduate courses in comparative literature (first, second, and third year). It is felt that these courses will introduce students in departments of language and literature to the idea of comparative literature studies and constitute attractive op-

tions for students in other faculties who tend less and less to take courses in literature formulated along the lines of the traditional "survey of literature" course. Potential students of comparative literature frequently become interested at a stage in their careers when it is too late to develop those language skills which are part of the requirements of comparative literature.

The committee is also looking at its existing program with a view to possible change. Its program, oriented towards modern theory and methods, is somewhat unique and already has an international reputation. At the same time admission standards are high and the concentrated material in the one-year program is demanding. There has been, over the last few years at Carleton and elsewhere, a significant reduction in students with combined honours (or equivalent) in two languages/literatures, and of these a number will obviously not be interested, while those who may be frequently not acceptable (in terms of expected achievement in the difficult program rather than the formal admission requirements for entry). Thus, the committee is studying the feasibility and desirability of a rearrangement of existing courses and prescribed course patterns to accommodate those students considered to have less potential, despite an excellent undergraduate record, than those who currently complete the program. Such a rearrangement would not eliminate the essence of the existing program as one optional pattern of study and also would not increase the number of courses to be offered.

In respect of interdepartmental programs/"clusters" of courses, a survey was made this year of all courses with medieval content offered at Carleton University, and discussion is being held with interested members of the faculty concerning the possibility of a proposal for a medieval studies program (or alternatively, a listing in the university calendar as is the case with women's studies). A similar survey of courses with Renaissance content will be carried out next year.



Teaching Methods

The approaches to teaching taken by most, if not all, of the departments in the Faculty of Arts are traditional. Basically this approach involves lectures, discussion groups, and seminars. The Department of Linguistics reported that a great deal of experimental methodology was used in the non-credit English as a second language program with the most important work occurring in the area of teaching English for scientific work.

Students

The majority of departments in the Faculty of Arts distributed brochures at both the undergraduate and graduate levels. Additional recruitment measures included: speaking engagements at the various local secondary schools to publicize the departments' programs and courses; the hosting of various competitions, such as those in German, French, and Spanish; and greater emphasis on personal contacts with sister institutions to seek promising students at the graduate level. Also, an "Arts Faculty High School Hospitality Day" was held with most departments making contributions.

One notable exception to the continuing effort to recruit students was, of course, the School of Journalism where there were more applications than there were spaces. This was particularly true of the one-year program where the number of qualified applicants was far in excess of the number who could be accommodated by the physical facilities and faculty. The school felt that this situation is likely to continue in light of both economic factors and employment opportunities.

Enrolment limitations were imposed in a very few areas, mostly at the graduate levels and all because of resource limitations. Journalism again is the one exception having had enrolment ceilings in both the one-year program and in the first year of the four-year program.

Concern was expressed by some departments that a number of very promising graduate students from outside Carleton were lost because they received more generous financial offers from other universities. And the new visa student fees were seen as highly deplorable since the possible effect of the increased fees were seen to be a decrease in the number of these students and thereby damaging to the interchange of new ideas from many cultural backgrounds.

Most departments reported that at the graduate and upper-year undergraduate levels the calibre of students seemed not to differ from that of previous years; however, some concern was expressed about the calibre of students in qualifying-year and first-year courses. Comments from instructors in some departments suggest that students are not as well prepared as they have been in the past, particularly as regards writing and learning skills.



Relations with the Community

In addition to maintaining evening courses designed to give the general public the opportunity for advanced study in the humanities, the departments in the faculty involved themselves in the community in a variety of ways.

The English department sponsored again the course, *The Survival of Literacy*, through the Extension Division, and an off-campus undergraduate course, through the Office of Continuing Education. It has also undertaken with the Ottawa Board of Education to administer annually an essay-writing competition funded most generously by an Ottawa benefactor. The department's Program Committee arranged several public lectures and poetry readings, while individual members of the department gave time and talent to the community through their participation in drama, poetry readings, concerts, and media reviewing. Two members of the department each produced a series of lectures in their discipline for television broadcast.

Members of the Department of History served on the Advisory Council on Public Records of the Public Archives of Canada, the Canada Council Commission on Graduate Studies, and the Ottawa branch of the Canadian Institute of International Affairs. Others have been active in talking to high school groups either about history as a subject or about particular historical subjects, while still others have been operating in a public information capacity giving talks and interviews on CBC radio and other stations. And, finally, two members of the department were active in the conception, gestation, and birth of the Canadian Research Institute for the Advancement of Women.

The faculty of the School of Journalism regularly wrote and broadcasted in the media. Others consulted for a variety of government agencies. *Centretown News*, published bi-weekly by the school, circulated in central Ottawa; "Radio News" was and is an FM newscast produced by the school which serves both the university and the Ottawa community; and last year for the first time "CUTV News," with which the school is deeply involved,

was on community cable. Members of the faculty served as judges for such competitions as the Business Writers' Awards and the ACTRA Awards and contributed to the university's lecture series on the Status of Women. They also consulted with officials of King's College, Halifax, and the University of Regina, both of which are considering establishing journalism programs.

The Department of Philosophy sponsored a successful public lecture series in which a lecture on "Animal Rights" evoked the strongest public response. Individual members of the department made large contributions to the fine arts at Carleton and to the work of the Carleton University Academic Staff Association. Several members participated in meetings of the Carleton Jurisprudence Centre and in talks with the physics department on questions of basic ontology. One member acted as a consultant on "obligations to future generations" to a group concerned with problems of nuclear waste disposal. Another initiated and organized a series of well-attended colloquia at St. Patrick's College. Several members were involved in editorial work for the Canadian Library of Philosophy.

The efforts of the Department of Music included the following: continuation of a highly successful non-credit course, *Symphonic Music*, in conjunction with the National Arts Centre and the Office of Continuing Education; contributions to the program notes for the National Arts Centre Orchestra; music criticism for the *Ottawa Citizen*; frequent guest appearances on local CBC radio and a national broadcast of a faculty-conceived program on the American composer, John Cage; student performances of avant-garde music at local art galleries; hospitality within the department for informal recitals by students of local music teachers; and occasional guest talks at meetings of such organizations as the Ottawa Registered Music Teachers Association and the Symphony Society Youth Organization.

The Department of Religion reported that the Canada-Israel Foundation has now been firmly established. During 1967-77 it brought five leading academics from Israel to Canadian universities, and it is expected that Canadian scholars will begin visiting Israel under the auspices of the foundation in 1978-79. The McMartin Memorial Lectures for 1976 were given by two scholars, Professor D.Z. Phillips of Swansea and Professor C.K. Barrett of Durham, and were in each case well received both by the Carleton community and the general public who attended.

Faculty of Social Sciences

Dean's Introduction

The academic year 1976-77 ends with the usual set of old and new traditional exercises. Graduates in the social sciences are more numerous than ever before. May, the month between the end of examinations and Convocation, has been characteristically typified by the combination of dilatoriness and frenetic urgency which always accompanies the preparation of final grade reports. Among the new decadal traditions for year end has been that of planning assessment of faculty members for career development increments and negotiating a new contract with faculty which will probably make such assessments even more problematic.

The faculty will start the next year with a new dean, and it can count itself fortunate that the capable and energetic T.J. Ryan has been willing to accept the appointment. Which fact gives rise to the observation that this is a final annual report, and though the temptation is clearly present to adopt a valedictory mode, I shall attempt to eschew it.

Substantial and useful progress was made during the year by the Department of Economics toward developing a joint Ph.D. program with the University of Ottawa. There is good reason to believe that, given necessary approvals by the two universities and the ministry, the program will be successfully launched in the fall of 1978. Some reduction in undergraduate numbers made the situation in economics more tolerable, although the staff-student ratio is still high within the faculty and, of course, much higher than any department outside the Faculty of Social Sciences.

The Department of Political Science continued its record of a high level of scholarly production while maintaining a substantial responsibility for both undergraduate and graduate instruction. A modest decline in enrolment at both levels allowed the department to devote more of its efforts to research activities. Some of the younger people have been particularly active, which augurs well for the future.

The Norman Paterson Centre has completed its first year with quite satisfactory progress. The administration of exchange agreements is now functioning much more smoothly under its centralized control. Although it is obvious that the centre has much scope in terms of as yet unexploited opportunities, it is equally obvious that a sound organizational framework has been established to accommodate such future academic ventures. The School of International Affairs has concluded another successful year. It is now established as one of our more stable and productive units of graduate studies and research to the extent that its many worthwhile efforts are now accepted as unexceptional.

The Institute of Soviet and East European Studies has weathered a year of indentity crises and sharply reduced enrolment, withal under very good direction. The program remains intact and, given its support by some excellent scholars, it will undoubtedly reassert its liveliness. A further strengthening of working relations with the Paterson Centre will, of course, enhance the probability of predicted revivification.

The Department of Sociology and Anthropology experienced a further decline in enrolment after some indication of recovery last year. Declining undergraduate enrolment was offset to a significant degree by increased graduate activity. However, a 22 percent reduction in first-year students cannot but be reflected in the future. This department appears to be fated to experience the most extreme consequences of changing student preferences. A similar (approximately 10 percent) reduction in political science first-year enrolment indicates that a concern for the broader issues in society is lessening in favour of those disciplines which may be perceived as more empirical and pragmatic. Thus, the overall position in the faculty was nearly stable with significant increases in geography, law, and commerce and substantially no change in the two largest departments, economics and psychology. Since sociology/anthropology and political science have well-established and prestigious graduate programs, it may be that reductions in undergraduate load can be compensated by further expansion in graduate work. However, those professors now carrying the bulk of the undergraduate load may not be properly utilized in graduate studies, and the amount of increase in graduate students is limited by considerations which would make a completely balanced shift extremely unlikely. Although further expansion in the Schools of Public Administration and International Affairs would provide a significant buffering effect for political science, similar opportunities for shifting professional resources are not available for sociology. It would appear that even in the short term the faculty will experience serious difficulties in both inter- and intradepartmental distribution of resources which will add to longer-term problems of compensating for areas of expansion with, at best, a fixed faculty complement.

Geography has benefited from the advantages accruing to a department with only one member of faculty on leave, a very satisfactory research activity, concrete evidence of the effectiveness of changed methods of instruction, a continuing but manageable increase in undergraduate enrolment, and a stable enrolment of graduate students. Such a happy concatenation of circumstances is rare enough these days to deserve attention.

The Department of Law with very able assistance from a large number of sessional lecturers has been able to maintain its undergraduate offering in law as a social science in spite of continuing large increases in student number. The fact that this small department can offer both graduate and undergraduate levels while a significant number of its faculty are engaged in an important consul-

tative capacity is both exemplary and notable. The department now is responsible for teaching more students than many larger, longer-established departments with much larger teaching staffs and other resources. Law is now eighth in the university in this respect, surpassed in arts only by English and history and in science by mathematics. The other four larger departments are, of course, in the Faculty of Social Sciences.

The other unit in social sciences most obviously hard pressed between the two conditions of an increasing student body and a reducing complement of full-time teaching positions for the faculty as a whole is the School of Commerce. Although it has been possible to provide some slight relief within these strictures, the school continues to be seriously understaffed and therefore extraordinarily dependent on sessional lecturers. It is of course fortunate that so many capable persons, willing to serve as sessional lecturers, are available to commerce. To provide a context for these statements, it may be noted that over the past three years graduates in four-year programs in engineering and journalism have numbered 121 and 105, 113 and 52, 81 and 86 respectively, and in commerce 63, 87, and 120. Faculty complements for engineering, journalism, and commerce are forty-nine, twenty-one, and eleven. Admittedly there is a large graduate program in engineering, and journalism has graduated three M.J.'s. However, commerce is called upon to teach large numbers of students in engineering, architecture, and industrial design while the reverse is not so. The whole problem is made more interesting by the fact that there is still intense competition for good commerce and business academics throughout Canada and the United States.

After our experience of the late sixties and early seventies, the university must try to avoid a significant number of academics in departments being stranded by a receding tide of students. Today's boom in commerce could be followed by a resurgence of student interest elsewhere. As a consequence, it is university policy to attempt to staff with a maximum of temporary appointments. Even though such a policy is undesirable in many ways, it has less serious consequences for the university as a whole than one which would ensure even greater inflexibility in the deployment of our resources in the future.

The Department of Psychology has been experiencing the initial throes associated with a province-wide assessment of graduate programs in the discipline. Progress through the preliminary stages appears to have gone smoothly enough, although it is much too early to predict the consequences of what is essentially a complex and chancy procedure. The department has, during the year, further strengthened its various internship arrangements for graduate students while not departing significantly from its strong experimental-theoretical bias.

Another full-scale review of the introductory course in psychology has been completed during the year. It is likely that some departure from the modular presentation which has been adopted as a means of dealing with the

large number of students (1,800 plus) in this course will transpire. Such departures will, of course, provide useful material for future evolution.

The School of Social Work this year completed an extensive curriculum revision which culminated several years of work directed toward bringing about a greater compatibility of the program with current and developing social work practice. The school was assisted in this important task by two consultants, from McGill and Dalhousie, who reported their findings and recommendations to the dean of graduate studies and the school. The school was also examined for purposes of accreditation by the Canadian Association of Schools of Social Work. Preliminary study and preparation of planning documents dealing with an undergraduate program in social work was another major academic administrative activity during the year.

The School of Public Administration accomplished a further year of operation of its revised program quite successfully. Although the heavy enrolment of full-time students did not increase, the continuing attractiveness of the program to part-time students continues to tax the full-time faculty resources. The availability of a large number of capable sessional lecturers has been a significant factor in maintaining the necessary breadth and high quality of course offerings. Dr. V.S. Wilson, who served as acting director during the year, will remain with the school after the return of Dr. Doern, who will begin a new term as director after the sabbatical leave.

The Faculty of Social Sciences at Carleton, now only one year old in its formal independence from the Faculty of Arts, has challenges to meet. In company with all other components of this university and with universities at large, we recognize the emergence of a new set of problems which are probably a necessary ingredient to the continuing evolution of our "task eternal." I can think of no better cautionary closing than an arcane bit of scholarship culled from an examination paper: "The bee must educate their young to help him learn that to survive you must be strong."—Anon.

R.A. Wendt

Programs and Policies

Economics

In 1976-77 the department concentrated on upgrading the quality of its undergraduate program by raising the entry requirements to higher-level courses. Advanced economic theory was introduced in a senior course strongly recommended for honours students, and in the master's program the department decided to expand its offerings into several new fields with heavy emphasis on policy questions, particularly in the areas of urban and regional studies and international economics. Finally, as noted in last year's report, further work was completed in modifying the Ph.D. program in line with the decision to bring the University of Ottawa's resources under the department's theme of "Economic Policy in Canada."

Further emphasis will be placed on the development of the applied M.A. in policy-related fields. This will require close collaboration with the Paterson Centre as well as the School of Public Administration. In the Ph.D. program, particular attention will be given to securing successful reappraisal of the joint Ottawa-Carleton Ph.D.

Budgetary arrangements have resulted in continued growth in average class size. The department's past ability to rely on sessional instructors is no longer possible because both total resources and rates of pay are insufficient.

Geography

Overall registration in the department's arts degree programs were almost identical to 1975-76 with 220 students registered in the pass programs, 128 in the honours programs, and 32 in the master's program. However, there was a significant shift in the distribution from part-time to full-time registrations in the undergraduate programs: full-time student registrations increased 9 percent; in the B.Sc. Honours program in Geography registrations increased from 3 to 12 students.

Course enrolments increased markedly by 22 percent to 1,692. Undoubtedly, part of this increase is attributable to the impact of introducing a modularized first-year course the previous year. Second-year course enrolments increased by 78 percent, and part of the increase throughout these and the upper years was seen as a reflection of the continuing, growing awareness of the relevance and value of a training in geography to many environmental and regional developmental problems; employment prospects in these areas are not dim.

Two major changes in the undergraduate program became effective in 1976-77: the annual field course for second-year students became a requirement for graduation; and an alternative to the honours research essay in fourth year was introduced in the form of a comprehensive examination.

The program at the graduate level was subjected to fairly intensive review, and some preliminary changes were approved which will move the department towards

increased emphasis on the applied aspects of the discipline, based on development issues in Canada and the Third World, as agreed in principle and reported last year.

Despite increased teaching loads, research and publishing activity was increased over previous levels. Contract and grant support amounted to \$74,239, including \$12,960 for direct student support. The projects undertaken included: providing expert witness for the Berger Commission; historical development research in Essex County, Ontario; development studies in Africa and the Caribbean; frozen ground studies for highway design research; language perception in Ottawa-Hull; capital city selection processes; regional disparity and demographic trends in Canada; scenarios of Canadian political boundaries in 2,000 A.D.; regional variation in income in Canada; transport and the mining resource industries; and applications of computerized geographic information systems.

The department's overall objectives have not changed significantly; however, a number of items are expected to benefit from increased attention. The modest beginning in establishing the Canada-Third World development focus at the graduate level was consolidated by a series of faculty seminars. The co-operative cartography project, a promising but somewhat complicated step forward with Queen's University, has had program details approved jointly at the departmental level, and it is planned that full advertisement will be achieved in 1977-78. In addition, there is an indication of close co-operation with the federal government departments in the program: preliminary discussions have been held with both groups. Finally, development of field work, at both graduate and undergraduate levels, is an important area which is gradually benefiting from the redirection of resources. Also, preliminary work has been carried out on a possible internship program, primarily with the undergraduate program in mind.

No new programs were considered by the department although work will progress on the Canada-Third World and the co-operative cartography programs. To a large extent these programs will be developed from existing courses.

The department is a comparatively small unit in the faculty and is stretched about to its limits under present resource provisions. Substitution of sessional lecturers solves only one of many problems arising from the operation of a small department. One negative result of a small full-time faculty establishment is that acceptable graduate students have been declined in sections of the department which are overloaded.

Budgets also constrained a number of teaching developments. It is strongly felt that erosion of course assistant provisioning for course development in senior and non-laboratory courses will ultimately lead to less up-to-date courses. Field work in individual courses was restricted; students were asked to delay enrolments in the field camp course, and restrictions placed on the location and transportation for field camp led to modifications of the pro-

gram away from ideals. In on-campus courses, print material distribution was restricted in some instances, as was the use of audio-visual materials. It is clear that under-provisioning is likely to have a cumulative negative effect on quality of instruction if present trends continue for long.

Law

Interest in the study of law at the undergraduate level continued to grow with 2,640 students taking at least one course in law, an increase of 9.1 percent over 1975-76. The increase in the number of combined majors and honours kept pace with the overall increase.

The department continued to maintain close ties with the Law Reform Commission of Canada through the Jurisprudence Centre and the employment of commission members as sessional lecturers. In addition to practising lawyers, the department has been fortunate in being able to employ members of the legal branch of various government departments (Justice, Treasury Board, Canadian Radio-Television and Telecommunications Commission, Anti-Inflation Board) to lecture in particular fields.

Two-half courses, Law 51.348*, *Legal Aspects of Sports and Law* 51.301*, *Women and the Legal Process*, which had been tried successfully during previous summer sessions were incorporated into the regular academic session with considerable success. The revised course Law 51.354*, *Law and Native Peoples of Canada*, now a half-course, was reintroduced during the fall term and will be continued on a permanent basis. A half-course at the third-year level, Law 51.355*, *Law Reform and Protection of Life*, was given in the continuing education series during the fall, 1976. On the basis of the enrolment and interest shown for this subject, it was decided to include it in the regular curriculum for next year.

The Department of Law will be associated with St. Patrick's College in the new undergraduate program in criminology and corrections. Law 51.234, *Law and Anti-social Behaviour* has been designated a compulsory course for the criminology program. This will require a new section of the course as the present two sections are already overcrowded.

Political Science

The Department of Political Science continued to produce scholarship and teaching of the highest quality during the past academic year. The Ph.D. candidates in the department received more Canada Council grants than any other political science department in the country.

The department had a course enrolment equivalent of 3,332 full courses—2,938 at the undergraduate level and 394 at the graduate level. Six courses or sections were offered at St. Patrick's College with an enrolment of 261. In addition, a section of the introductory course, offered as one of the January Admissions course offerings at St. Patrick's College, had a registration of 74.

Majors in political science totalled 106 full-time and 64 part-time students; combined majors were 86 full-time and 54 part-time. There were 114 full-time honours students and 28 part-time; combined honours totalled 78 full-time and 7 part-time. While full-time major and honours students in the department decreased by 24 from 1975-76, the part-time total rose by 17 and the combined full-time total increased by 6. There were 14 full-time major students at St. Patrick's College and 7 part-time, 18 full-time combined majors and 4 part-time, and 1 full-time honours student. At the graduate level, there were 76 full-time students (44 Ph.D., 28 M.A., and 4 in the qualifying year) and 45 part-time students (15 Ph.D., 27 M.A., and 3 qualifying year).

The introductory course, a perennial problem, arose as an issue again this year. The student New University Government representatives pressed hard for a general review of the situation and for reforms. An ad hoc committee was struck comprising equal numbers of students and instructors of the course. The first proposal was to reduce the total number of sections by having some larger classes along with several smaller ones. The majority of the committee thought that by having fewer classes the problems of finding willing instructors and of co-ordination would be less difficult. More teaching credit for the introductory course was also proposed.

More importantly, the committee suggested that the course should cover four general areas: (1) political thought, stressing modern ideology; (2) comparative politics, including Canadian government and another liberal democracy, a communist country, and developing countries generally or a developing country; (3) methodology; and (4) international affairs.

The report was discussed at length by the department board and was passed. The new program will be put into effect in 1977-78. The committee, however, considered this only a first step in developing a more dynamic first-year program. The department has applied for a considerable grant from the university's Committee on Instructional Development to this end.

The department, along with the university, came to an agreement with Ife University in Nigeria to second faculty members to Nigeria and to accept qualified candidates from Nigeria into the Ph.D. program.

University restrictions on the budget ended the Occasional Papers series of the department, but an extremely successful departmental seminar series was developed.

Psychology

In summary of the state of the Department of Psychology in 1976-77, total course enrolments were 4,761 (more than any other subunit of the university). Full-time graduate students numbered 46, with 17 part-time, accounting for 10 percent of full-time and 4 percent of part-time graduate students in social sciences. There were thirty-

five full-time faculty members at ranks of assistant professor or above, seven full-time instructors responsible solely for teaching the introductory psychology course (Psychology 49.100) to over 1,700 students, and eight adjunct professors and research associates whose primary jobs and applied settings provided a liaison between the department and a variety of community institutions.

Between September and March, a special standing committee on *Introductory Psychology* met to produce a major report on the future of instruction in this large course which serves a significant proportion of the undergraduate population at Carleton. Two important decisions were reached by the department on the basis of this report: the first was to convey the substance of the course primarily through lectures, with some smaller proportion of course content given through mini-courses of the type now employed in the course on a large scale; the second decision was to man the course entirely with full-time faculty members at the rank of assistant professor or above by 1979-80.

Developments in graduate studies during the year centered on the necessity to come to grips with the kinds of academic planning called for by the Advisory Committee on Academic Planning (ACAP) assessment of graduate programs in the province (the psychology assessment is still in progress). The department reaffirmed its traditional determination to avoid redundancy of offerings with the University of Ottawa; consistent with this, the decision was made to offer no graduate programs in clinical or applied psychology. Recognition of a contracting academic job market, however, reinforced the necessity to provide research experience in field settings. To this end the department initiated negotiations for internship programs at the Non-Medical Use of Drugs Directorate of Health and Welfare Canada, the Health Protection Branch of Health and Welfare, and the Ottawa Board of Education. These will complement existing internship arrangements with the Rideau Regional Centre and with the Children's Hospital of Eastern Ontario. Through such opportunities, though Carleton's graduate programs in psychology will remain research oriented, students will be able to gain the applied experience which will make them viable contenders for research jobs in the field.

The year was marked by more research activity by undergraduates, graduate students, and faculty members than ever before. Among the authors of research papers presented in April, May, and June were twenty M.A. and Ph.D. candidates, two fourth-year honours students, and thirteen faculty members. These papers were read at the International Society for the History of Behavioral and Social Sciences, the American and Canadian Psychological Association meetings, the Association for Early Childhood Education Ontario, the North American Sports Psychology Association, and at the Symposium International: *Du Processus de la readaptation*.

Sociology/Anthropology

The department concentrated upon ensuring a well-integrated balance of undergraduate and graduate instruction. A formal departmental evaluation of all course offerings was undertaken in 1976-77 in order to consider course content and the relationships among courses. The object was to avoid serendipitous course collections and to ensure coherent program opportunities. The organization of course offerings has been manifest in the balance of day, evening, and summer offerings and in the deliberate attempt to offer full program choice to the approximately 50 percent part-time enrolment serviced by the department.

The most conspicuous goal of the department is to secure the foremost program of sociology doctoral instruction in Canada. The department has long enjoyed an outstanding reputation as a locus of sociological study in Canadian society, and that reputation has been enhanced by the notable publications of its graduates. Over the next several years the department will be attempting to attract prominent faculty visitors and superior doctoral candidates.

Developing alongside the graduate program in sociology will be the more recent M.A. program in Anthropology. The 1976-77 academic year marked the first M.A. awarded in anthropology, and the department expects the program to attract an increasing number of well-qualified students.

At the undergraduate level, the department's immediate objective is to organize sufficient course sections to permit smaller class sizes than has been possible in the previous twenty years of the department's history. In particular, effort has been devoted to dispersing gradually the numbers of students in the very large introductory sections.

Budget restrictions have meant an effective reduction in the department's faculty establishment. This has particularly damaged the graduate program. The department has, by reputation, been in the position to attract prominent scholars, but budget has prevented any such appointments.

School of Commerce

Inadequate teaching resources continued to pose significant problems for the School of Commerce in 1976-77. Enrolment in the commerce program increased 12 percent over the preceding year; course offerings, on the other hand, reflecting also the continuing popularity of commerce courses with non-commerce students, rose 25 percent.

Demand for service in the areas of accounting and finance continued to grow steadily. The program in marketing also began to exhibit signs of growth. The changeover to the new program in business systems was implemented with little or no pause in student demand. The school turned its attention, therefore, to the areas of organizational behaviour and business policy where the lack of resources

is critical. A first priority in the coming year will centre about the need to add faculty in these areas.

The pressure of growing enrolment on teaching resources and available facilities reached a level in 1976-77 which necessitated direct action by the school. A modest increase in program entrance requirements has been instituted, coupled with a C- requirement in senior-level course prerequisites. Budget constraints have also required the cancellation of course sections, chiefly in first- and second-year courses. The overall result of these steps will be that enrolment growth will tend to moderate in 1977-78.

The Faculty of Social Sciences, through its Academic Planning Committee, initiated a review of the commerce program in 1976-77. Unfortunately, the review, which was intended to be the first in a series of program assessments within the faculty, produced no tangible results during the current session. To the faculty of the school, however, 1976-77 appeared to be an opportune time for a comprehensive internal re-evaluation. A detailed study of the objectives and goals of the school, and available resources and facilities, was undertaken. The tentative conclusions of this review have provided the school with no major surprises. Major weaknesses in the program are evident in the areas of organizational behaviour, policy, and quantitative methods. The responsibility of the school to service the community cannot be served adequately until the school can actively provide offerings in management development, preferably in the form of a certificate program in business. The level of inquiries, both at the school and at the Office of Graduate Studies and Research, gives ample proof of the need for an M.B.A. program at Carleton. All of these problems centre about the ongoing problem—lack of resources. It is obvious to the members of the school that a first priority must be a more vigorous campaign for added faculty. The school is hopeful that, upon completion of the current review, a well-documented demonstration of its need will ensure strong support for the school in the Faculty of Social Sciences and throughout the university as a whole.

School of Public Administration

The School of Public Administration had a course enrolment of 1,017 during 1976-77: 43 in the two undergraduate fourth-year courses offered by the school and 974 at the graduate level. Many of the school's students were enrolled in courses specifically offered by economics, political science, sociology, and law, so the course enrolments of these departments will also reflect the increasing growth of public administration at Carleton. Graduate courses totalled twenty-nine and were offered in sixty-four sections.

The total number of graduate students on the rolls was 94 full-time and 220 part-time. Undergraduate stu-



dents numbered 93 in the honours program and 33 in the Certificate in Public Service Studies (C.P.S.S.). There were 25 students enrolled in directed studies, while 15 opted to write theses and 5 wrote research essays. For 1976-77 the school graduated 10 B.A. honours, 11 C.P.S.S., 13 D.P.A. (Diploma in Public Administration), and 41 Masters of Arts (Public Administration). Total graduate student applications processed during the year numbered 330.

During the year faculty were engaged in numerous public policy research projects conducted under the auspices of the Economic Council of Canada, the Canada Council, the Conference Board in Canada, and Health and Welfare Canada.

The school, in collaboration with the McGill University Centre for the Study of Regulated Industries, held its second conference on *Regulation in Canada: Process and Performance* at Montebello, Quebec, March 3-5, 1977. The conference brought together for the first time a group of 120 people, including academics, regulators, industry and consumer representatives, as well as those of associated professions, to examine the main issues of the regulatory process, regulatory performance, and regulatory reform in Canada. Academic participants came from the disciplines of political science, law, and economics, and industrial and other participants were drawn from major regulated sectors such as telecommunications, oil, gas, and atomic energy.

The school continues to face serious problems in staffing. Having one of the largest graduate programs at Carleton puts enormous strain on the eight faculty members involved in public administration. Additionally, at least three members of the school's faculty have been called upon to be involved in doctoral supervisions in the Department of Political Science. This strain has, however, been mitigated somewhat by the willingness of the School of Commerce and the Department of Economics to supply some teaching personnel to the school. Due to the general climate of austerity at the university, some of these goodwill agreements are being phased out, and increasingly the school is being forced to look for personnel resources elsewhere. The university will have to face up seriously to its commitment in public administration education if the school is to continue to maintain its viability and the quality of its offerings. Already there is evidence that there is a need for some serious readjustments in the quality of some of the school's courses. Undoubtedly, faculty and university administration will have to confront these problems in the very near future.

Space has also become a critical problem for the school. Sessional lecturers complain that they have no access to office space: consultation with students must be done in either the classroom immediately preceding or following classes or in government offices in downtown Ottawa or Hull. The problems of student and faculty space is even worse. To outline the problem in a report of this nature would make the whole exercise sound melodramatic. Suffice to say that because of this lack of space, many of the full-time graduate students are known to professors only because they attend classes—they are never around the ninth floor of the Arts Tower building, where public administration shares half the floor with a part of the mathematics department.

The undergraduates are perhaps the most vocal in their claims that their access to professors and other resources in the school is virtually non-existent. The school is at the moment working on ways in which this problem of access can be mitigated for this body of its clientele. Additionally, during 1976-77 the acting director chaired a committee of faculty and student representatives which looked into the need for fundamental changes in the undergraduate offerings in the school's honours program. The work of this committee is still incomplete, but there is every indication that new changes in the program will be recommended to both the school's faculty and the Social Sciences Faculty Board during 1977-78.

School of Social Work

The program review that was being conducted by the Faculty of Graduate Studies and Research during the previous academic year was completed in August of 1976. The complete program of the school was approved by the Faculty of Graduate Studies and Research and by the Senate of the university at that time. This represented

the culmination of a considerable amount of effort by the school and by the Faculty of Graduate Studies and Research over the previous two years. With that review completed last August, the school has had the opportunity to move to enhance the various components of the program and to continue its consolidation.

Another review of the school's program is now being initiated as part of the Committee of Ontario Universities ACAP procedures. The Discipline Group has been formed and has been meeting since May. The final decision to proceed for social work in the province and the specific procedures to be followed is anticipated early in October.

A third review of the school's program is also nearing completion. The school submitted the required documents for accreditation by the Canadian Association of Schools of Social Work during the month of December, 1976. The initial reports have been reviewed by the Board of Accreditation. An accreditation team has visited the school and completed its report. It is anticipated that the accreditation process will be completed sometime this fall.

A major development in the curriculum during the year was in the establishment of a field placement project for students in Direct Intervention. A number of experienced practitioners have been contracted by the school to become supervisors of students and to participate in discussions with faculty concerning the ongoing teaching of the curriculum in the school and in the field.

There is continuous pressure on the part-time program. This school now has approximately thirty-eight students enrolled in part-time studies and must turn away a number of excellent candidates each year. As a result, the school is considering a freeze on admissions for the next year due to a lack of sufficient resources to accommodate a larger part-time program.

The Centre for Social Welfare Studies continues to be active. A major manpower education study in the field of social welfare in Ontario is going into its third year, being financed by two ministries of the Province of Ontario. The study has been under the leadership of a member of the school's faculty. The program evaluation project has been very successful. A number of workshops have been held both in Ottawa and across the country, and a considerable amount of excellent teaching material has been developed. A number of publications have resulted from the project to date and these are receiving wide distribution.

A three-day conference on equality in Canada was held on campus in April. The conference was jointly sponsored by three schools of social work — Carleton University, McGill University, and Dalhousie University.

Over the next four or five years, the school will continue to consolidate its academic program and continue to develop its faculty resources. Two new members have been added for the coming academic year. In addition, a visiting arrangement with McGill has been set up.

The school has been developing a proposal for an undergraduate program in social work for the past two years.

It is anticipated that a proposal will be submitted to the Academic Planning Committee for the Faculty of Social Sciences this fall for consideration. If the school proceeds to the implementation of an undergraduate program, this will be a major development for it.

The Norman Paterson School of International Affairs

The school maintains a strong educational program due to a dedicated faculty from very strong departments of the social sciences. As a relatively new school, it has been able to develop an innovative and highly topical curriculum, including such areas as the impact of science and technology and international affairs (bringing together the Departments of Physics, Mechanical and Aeronautical Engineering, Political Science, Economics, and History), the multinational enterprise, the politics and economics of commodity agreements, East-West trade, as well as the use of sophisticated methodologies for data analysis and access to advanced techniques of information retrieval. The maintenance of full participation by several disciplines in the core seminars is an essential ingredient in the learning process as an effort is made to transcend the boundaries of the academic disciplines in an effort to cope with increasingly complex policy problems. The faculty is professionally visible, highly productive in terms of publications and research, and remarkably civil in terms of human relations despite an incredible workload of teaching and supervisions of student research. The school has attracted a distinguished group of international visitors. Students are extremely hardworking, provocative, and verbal. Of the 158 graduates over the past eleven years, roughly one-quarter are in Canadian government agencies concerned with international affairs, one-quarter in transnational and international organizations and other government services, one-quarter in higher education after going to Ph.D. programs, and one-quarter in law and business here and abroad.

In four core seminars on international integration, international development, Canada's foreign policies, and conflict analysis, the school tries to sharpen the student's perceptions of how to deal with problems that do not lend themselves to simple solutions or mere theorizing. The goal is to teach students how to look at a problem, take it apart, fill in the information gaps, make recommendations, argue a viewpoint. Faculty members emphasize the writing of clear and concise prose, how to dig out relevant information, the importance of meeting tight deadlines, and methods for effective oral briefing. The school has a limited internship program in government and international organizations to lend practical experience to the program, and this is a program which could be expanded considerably. There are some limited funds for field research, and this program could also be expanded. The commitment to a global vision and an orientation toward constructive change are hallmarks of a program which has attracted a promising

group of highly motivated and intellectually gifted young people.

Institute of Soviet and East European Studies

The 1976-77 academic year was one of normalization and consolidation following the period of uncertainty described in last year's annual report. The administration of activities which had been shifted to other departments of the university was returned to the institute at the end of the previous year. In 1976-77 both the undergraduate honours and graduate M.A. programs in Soviet and East European Studies were once again administered within the institute.

The teaching program functioned according to the curriculum established in previous years with no major changes and continued to be supported importantly by the institute's activities in the areas of research and community relations. East-West relations and nationalities and minorities questions in the Soviet Union and Eastern Europe have continued to be the areas of research concentration within the institute. The East-West project has attracted outside financial support which has been used to fund student research assistance, the institute's publication series, and a portion of the institute's series of very popular seminars and lectures. Not infrequently people travelled from Toronto and Montreal to attend lectures on specialized subjects of interest. A similar series of special seminars has been organized for the upcoming year in co-operation with the federal Departments of External Affairs and Industry, Trade and Commerce.

At the end of the year, the Board of Management of the institute decided to take the initiative in reopening formal communication with the new Paterson Centre for International Studies by inviting the director of the centre to sit as an ex officio member of the board. In response to this overture, the Committee of Management of the centre has invited the director of the institute to serve ex officio as a member of the committee. It is hoped that these initiatives will improve the channels for effective communication and co-ordination between the institute and the centre.

The institute offers the only interdisciplinary M.A. program in Soviet and East European Studies in Canada, together with a strong preparatory undergraduate honours curriculum leading to it. The rapid expansion of Canadian political, economic, scientific, and cultural contacts with the Soviet Union and Eastern Europe over the past five years has dramatically increased the need for young Canadians trained in the languages and familiar with the societies and cultures of the area. The increased interest of Canadian government and business in the Soviet Union and Eastern Europe has in turn awakened a response among students, and demand for the institute's academic programs has strengthened.

Severe constraints on faculty expansion, and even replacement, limit the ability of the institute to respond to this demand. Since the institute does not dispose of its

own faculty, it must rely on services made available by the various related departments of the university. In current circumstances, not only are these services less readily available, but area specialists who retire or resign from the faculty are not readily replaced. Therefore, the institute faces the problem that while there is excess student demand for its instructional programs, and it can often obtain external funding for expansion of special programs such as research, conferences, and visiting speakers, it faces a static situation with regard to academic staff and the prospect of a long-term decline in the number of associated faculty.

The policy of the institute over the next few years is to maintain enrolment at its present levels of approximately twelve students entering the fourth year of the undergraduate honours program and about six students entering the regular M.A. year of the graduate program annually. With student demand in excess of available academic resources, the institute has continued to raise the standards required of incoming students and to seek ways to speed their progress through the programs.

Teaching Methods

The size of introductory and some second-year-level courses in the faculty leaves little choice but the lecture method or the modularized approach used in psychology, economics, and geography. In courses beyond the first year, departments reported having used a variety of teaching methods, including tutorial, seminars, individual reading courses, supervised research, discussion groups, field work, simulation games, multimedia courses, computer simulation, and group projects. The Schools of Commerce and Public Administration reported an increased use of the case method and also noted that fourth-year seminars had begun to suffer from oversized classes.

Experiments in teaching methods undertaken during the year included a two-day orientation workshop for teaching assistants in political science, conscious attempts by the School of Social Work to develop further the use of team teaching and courses in which a "dialogic" approach to the material is employed, and the use of simulation in the law courses offered during the fall and summer terms.

A great deal of use was made of audio-visual aids; for example, from the workshops offered for political science T.A.'s, five hours of videotape was condensed into a half-hour presentation highlighting some of the best teaching techniques and showing how the contrasting styles of group leaders can affect outcomes.

In the School of International Affairs primary reliance in teaching is placed on the seminar. The major difference is in team teaching, as an interdisciplinary input from the teaching process itself is required. All too often in schools of international affairs the interdisciplinary component is not built into the teaching program. Students take

courses from different disciplines, but the actual integration of the material is left to the student. These are properly called multidisciplinary rather than interdisciplinary programs, and all too little integration of material occurs. By insisting on a team of faculty, an interdisciplinary emphasis is maintained in curriculum planning, faculty-student interaction in weekly seminars, and in joint marking and supervision of student research. With increased faculty teaching loads at the undergraduate level, there has been pressure to reduce the number of interdisciplinary seminars and the level of joint faculty input, but it is an integral part of the Carleton program and relatively unique among schools of international affairs internationally.

A simulation exercise was introduced as a teaching method in the Canadian international policy seminar. The exercise dealt with Canadian-United States diplomatic and trade issues and required students to prepare policy papers in advance and conduct negotiations. Careful evaluation was carried out, and the exercise proved particularly valuable to participants and faculty alike. The school is also in the process of developing a larger man-machine simulation of Canadian foreign policy issues which will be used in later years as an integral part of the teaching program.

Another special feature of the program is the emphasis on computerized information retrieval procedures whereby a student can learn how to use advanced information techniques to ensure that the latest information is brought to bear on a research question. The speed with which research can be completed is also emphasized because this is of major importance in policy settings where students are likely to work after graduation.



Students

The concern voiced by the Department of Psychology in last year's report that its resource situation prevented it from providing a reasonable undergraduate education for the large numbers of students registering in its courses was echoed in this year's report by the Department of Law and the Schools of Commerce and Public Administration. Commerce, in particular, observed that despite Senate's rejection of a related proposal last year by the school, limited enrolment is required in many areas, most notably in accounting which is especially subject to the pressures of growth. The school noted with alarm the rapidly growing popularity of commerce course offerings with non-commerce students and observed that separate course offering for these students are now being considered. The Department of Law cited its heavy reliance on sessional lecturers as a measure that, while useful and necessary, has reached the limit of its effectiveness since the needs of the students, in terms of supervision, have begun to exceed the capabilities of sessional lecturers. The School of Public Administration made a similar point in stating that increasing enrolments have put greater demands for supervision on a "skeletal" faculty of eight members and severely restricted the department's competence in the handling of seminar classes. The school went on to observe that, while enrolment limitations have not been utilized in the past, some form of departmental policy on this matter may soon be required.

The School of Social Work maintained a limited admission of fifty full-time students per year but, despite the pressure on resources, increased its part-time admission from five to seven.

As was noted in last year's report, most departments commented on their students' tendency to have clear ideas of future plans, to work toward definite goals, and to settle into their work earlier in the term than previous students.

The political science department noted that in spite of the internal and external financial support which graduate students have received, financial problems continue to plague many of them, particularly those with dependents to support. The recent change in the university's graduate student funding, by which no distinction is to be made between scholarships and teaching assistant stipends, was viewed as a policy which will preclude the possibility of offering financial support in the form of teaching assistantships, particularly to doctoral students in upper years and students admitted to the M.A. program after the annual allocation of scholarship awards.

A few departments expressed the view that financial assistance for graduate students was barely adequate and certainly not competitive, with the inevitable result that many good students are being attracted elsewhere. Others expressed satisfaction with support levels and noted considerable success on the part of their students in securing Canada Council fellowships.



The School of International Affairs relies primarily on its international reputation in terms of recruitment. The school provides the only interdisciplinary graduate program in international affairs in Canada and is the only Canadian member of the International Association of Schools and Institutes of International Affairs. Over 300 applications are received each year for a target of forty-five places. Over a third of these applications come from outside Canada; the Petersen International Guide to Graduate Study is used to advertise the program. During 1976-77 enrolments were somewhat higher than in the past, with 49 new full-time students and 3 new part-time students enrolling in September, 1976. Total enrolment, including continuing part-time and full-time students finishing theses and research essays, was 125 of whom some 60 were full-time. Students from Africa, Asia, Europe, and Latin America entered the program, providing an important mix of international backgrounds and cultures which enriches the year of study of international affairs for all participants. Visiting faculty from abroad are also used to enrich the international makeup of the community. Rather severe restrictions are placed on admissions because of the school's inability to provide adequate supervision to more than 45 students per year.

Most students come from political science backgrounds, followed by history, languages, sociology and anthropology, geography, and economics. The main impact of the program in employment terms has been to give some economics training to students from the humanities and other social sciences. Employers in the international affairs area, and particularly international organizations, usually insist on solid preparation in economics. A substantial number of

undergraduate enrolments in the advanced international economics courses offered in the Department of Economics are NPSIA students. M.A. students also continue their graduate study in their principal disciplines while taking the interdisciplinary seminars and conducting their research.

Twenty students received the M.A. in the fall and spring Convocations in 1976-77. This is an improvement on earlier years and reflects a renewed emphasis by the dean of Graduate Studies and Research and the school director on completion of research within a reasonable time period. School students frequently carry out their research abroad and this does impose some delays. There has also been the problem of the school's students taking up full-time employment even before the end of their first years, and this has inevitably meant some delay in finishing research essays and theses and defending them. It does demonstrate how much in demand the school's students have been in the specialized employment market in this field.

Community Relations

A very considerable amount of time is devoted by the various departments to their relations with both the Ottawa community and the wider academic and political communities of North America and Europe.

In terms of course offerings and research, the Departments of Geography and Sociology/Anthropology as well as the School of Commerce reported indirect involvement in the Ottawa area community in that growing numbers of part-time students are being attracted. Sociology/anthropology reported that over the past several years the department has integrated its fall/winter evening session with the summer session by systematically rotating courses in order to ensure part-time students access to the entire body of departmental course offerings. The School of Commerce noted that continued use was made by the community of those course offerings that are accredited for professional programs such as the I.C.B. (Institute of Canadian Bankers), R.I.A. (registered industrial accountant), and C.A. (chartered accountant). The school also reported a strong demand for certificate programs in business—an item currently under study in the school.

Special seminars, colloquia, lectures, and publications also represented one of the principal methods whereby the departments maintained continuous contact with the university, the Ottawa area, and the international communities. Sociology/anthropology sponsored a series of eleven colloquia on topics ranging from "The Catholic Church and Canadian Socialism" to "The Press and Allende: The Natural History of a Counter-Revolutionary News Story" to "The Treatment of Rape and Rape Victims in the Canadian Criminal Justice System: Failure, Fact and Theory." Lectures to community groups given by the law department covered such topics as violence and sports, grievance handling, the teaching of law at the secondary level, and the Canadian legal system. The Department of Law also co-hosted the annual meeting of the Canadian

Council of International Law and gave a briefing to visiting political science students from New York State University on the Canadian legal system, an event which is becoming annual.

Some of the diplomats who visited Carleton through the School of International Affairs were the assistant secretary-general of the Commonwealth, the former British high commissioner to Nigeria, the Bangladesh high commissioner to Canada, the high commissioner of Guyana to Canada, the United States ambassador to Canada, the Indian high commissioner to Canada, the Venezuelan ambassador to Canada, the Tanzanian high commissioner to Canada, and the high commissioner of Sri Lanka to Canada.

Publications of note by the departments included a major study on direct Soviet and East European investment in the industrialized Western economies and a directory of Soviet and East European companies located in Western Europe, North America, and Japan (Institute of Soviet and East European Studies); and a law journal for high school students, *Just in Time* (Department of Law).

Direct involvement by individual faculty members beyond lectures and seminars embraced such activities as the School of Social Work providing consultation to social agencies and citizen groups, a workshop on program evaluation, a speaking tour in Ontario and the Maritimes by one faculty member involved in feminist counselling, and participation by faculty of the School of International Affairs in programs sponsored by the Canadian Institute of International Affairs.

St. Patrick's College

Program and Policies

St. Patrick's College has two major functions within the university: one is to develop and present multidisciplinary courses and programs; and the other is to provide an alternative environment for students who wish to study within many of the traditional arts and social science disciplines. The disciplinary major programs are administered by departments of the Faculties of Arts and Social Sciences. The college has jurisdiction over the multidisciplinary courses and programs.

In September, 1976, the undergraduate program in Canadian studies was inaugurated at the college. This three-year program leading to a major in Canadian studies is the first such multidisciplinary program to be offered by the college. Eleven first-year students registered as Canadian studies majors. However, the program was not publicized until July, 1976, and since first-year students do not usually declare majors, this figure is not a good estimate of the program's potential. Some changes in the structure of the program have been proposed as a result of the experience of the first year. The essential change is to permit students in the program to do the equivalent of a major in a related discipline in order to open the door to honours or graduate work within disciplines.

During the year planning went on for several activities related to Canadian studies. A study, sponsored by the Secretary of State Department, of the feasibility of a summer institute in Canadian studies was completed, and work continued on some of the elements of the proposed institute. Essentially, the idea is to present a summer program with a unique credit core surrounded by related extracurricular activities, all of which would make maximum use of the resources of the national capital area. Work has started on the multidisciplinary core courses and on some of the related events and activities.

A proposal to renovate a part of the college building to provide facilities for both the university's drama needs and Canadian professional theatre has been completed and will be used to solicit funds for the project. It is hoped that about ten plays performed by Canadian professional groups could be presented each year, with possibly some concentration of performances during a summer festival associated with the proposed summer institute.

Also related to Canadian studies, the first of a series of colloquia, called "Options for Canada" and sponsored by the college with assistance from the Canadian Labour Congress, the Canadian Manufacturers' Association, and the federal government, was held at Montebello, Quebec, in May. Just over fifty people from business, government, labour, universities, churches, and other sectors of society gathered to discuss Canada's future and the values required to deal with the issues we face.

In January the university Senate approved a program in criminology and corrections, the second multidisciplinary program for the college. It will begin in September, 1977. The program involves faculty members from sociology, psychology, and law, and its special characteristic is the emphasis on theory combined with field-work experience in agency settings which allows the academic dimension to be translated into practice. On fulfilling the requirements of the program, students will graduate with a disciplinary major in psychology or sociology with the transcript notation "with a concentration in Criminology and Corrections."

During the year plans were also formulated for a multidisciplinary program in the humanities. The first proposal is for the integration of disciplinary major programs with a general education component both to broaden and deepen study within the humanities disciplines. It is hoped that this program will begin in September, 1978, and as this new program is in many respects a further development of the Unified Liberal Arts Program, ULAP itself will be phased out.

A new interdisciplinary course in human development will begin in September, 1977. The course will look at the development of the human being from the viewpoints of psychology, biology (genetics and evolutionary theory), the social sciences, and linguistics.

The French Language Program, the Intensive Spanish Program, and the general B.A. continue to be offered by the college.

Teaching Methods

Team teaching will continue in the interdisciplinary courses *Biography and Autobiography* and *Contemporary English-Canadian and French-Canadian Literature* as well as in the new human development course, Interdisciplinary 04.201, *Development of the Human Being*. The core courses for the proposed humanities program will probably also involve team teaching.

The two existing multidisciplinary programs, Canadian studies and criminology and corrections, and the proposed humanities program all integrate disciplinary studies with a substantive or general education multidisciplinary component. The student, therefore, receives the benefits of disciplined study within a specific area as well as the introduction to other related areas of study which have value in themselves and which also may directly complement and supplement the disciplinary studies. This trend towards a higher degree of structure and integration will appear in individual courses, such as *Development of the Human Being*, and those being planned for the humanities program.

A first step into the area of "open sector" courses is being taken. With the financial assistance of Environment Canada, an introductory course in environmental studies is being prepared. It is expected that this half-credit course

will be offered through the media of newspapers and, possibly, radio and/or television to those who cannot regularly attend a university. If the first course is successful, others will be developed, one of which is already in the early planning stages.

Students

During the past few years, St. Patrick's has taken an active role in the university's high school liaison program. Through school visits, mailouts, and the publication of a brochure, the college has attempted to make both potential undergraduates as well as guidance counsellors aware of the academic opportunities offered at St. Patrick's College. To demonstrate the values of university education to the older members of our community, the college, with the help of the Ottawa Council on Aging, sponsored two very successful events for senior citizens during the year. Both were well attended and went a long way in making these people feel at home in the university setting, as well as showing them what this university has to offer.



Relations With the Community

St. Patrick's College has continued its involvement in community activities, primarily in the areas of social service volunteer programs, off-campus instruction, and its more recent sponsoring of major Canadian plays.

Annually, the students of the college organize and conduct a canned food drive, the recipients of which include the Salvation Army, St. Joseph's Mission, the social service groups of the Anglican and Roman Catholic churches, a number of half-way houses for former prisoners, as well as those for the former patients of the Rideau Regional Centre in Smiths Falls.

Additional volunteer programs serviced by the students of St. Patrick's include: (1) the probation program of family court's juvenile (sixteen and under) division (four to five students involved annually); (2) the Good Companions program for senior citizens (six to eight students annually); (3) ward assistance program for the Children's Hospital of Eastern Ontario (fifteen to twenty students annually); (4) the Group, a ward assistance program for the Rideau Regional Centre at Smiths Falls (fifteen to twenty students annually). In addition, plans were made for student involvement in a weekly remedial instruction program at the training school in Alfred, Ontario.

In February, 1977, the college presented the NDWT Theatre Company's production of *Balloon* by James Reaney and Marty Gervais. It was the second year in a row that St. Patrick's had presented Canadian professional theatre; this interest is, of course, related to the major theatre proposal discussed above.

Faculty of Science

Dean's Introduction

For the first time in many years science underwent a reduction in the number of undergraduate course registrations during 1976-77. Course registrations were 4.8 percent fewer than in 1975-76. In the graduate program, 157 students were enrolled full-time as compared with 158 in 1975-76. There were 73 graduates in the three-year B.Sc. program as compared with 80 in 1975-76, and 139 graduates in the four-year B.Sc. program as compared with 117 in 1975-76. These figures illustrate a continuation of a previously noted preference of students for the four-year as compared with the three-year program. In the graduate program, thirty M.Sc. and twenty Ph.D. degrees were awarded as compared with thirty and ten respectively in 1975-76. Accordingly, the year has been in general a satisfactory one in terms of teaching activity, clouded somewhat by smaller than usual elementary classes. However, much of the reduction was to be expected in that the abandonment of the qualifying year (pre-university-level classes), previously planned, was the cause of most of the decline.

To borrow a phrase from the Department of Biology report, the past year has mainly been "one of consolidation on all fronts." There has been little in the way of new departures either in projects or programs, and indeed there would have been a shortage of resources to support any such new activities had any been mounted. The Biochemistry Committee made an attempt this year to re-constitute itself into an institute of biochemistry but has failed, at least thus far, to receive the necessary Senate approval.

All departments have been concerned with improved teaching methods and, in general, with improvement of the teaching of science. Several have sought and received support from the Senate Committee on Instructional Development for projects in this area.

One of the more encouraging developments of the past year has been an increase in grants for support of research. While funds received from the National Research Council have not increased markedly, other sources of support, both private and public, have made assistance available. Chemistry has benefited more than other departments; indeed, its total income in aid of research has increased by 50 percent during the past year.

The faculty suffered the loss of Professor R.J. Semple of the mathematics department, who died during the year. Dr. M.S. Macphail, also of the mathematics department, retired at the end of the year. He was honoured by the university by being awarded the rank of professor emeritus on his retirement. Mrs. I.M. Valeriotte, who had been on leave from the chemistry department, resigned at the end of the year.

J.L. Wolfson

Programs and Policies

Biology

The 1976-77 year was mainly one of consolidation on all fronts in the Department of Biology. The total number of graduate students and honours students was virtually unchanged, while that of pass students declined slightly. More students took advantage of the joint B.A. programs in Biology and Law, Geography, History, or Psychology, which were initiated in 1975. The number of fourth-year honours students continued to grow, straining the resources of the department; the plateau forecast from lower-year enrolments will be offset by the growing number of honours biochemistry students taking biology courses. The forecast decline in new Ph.D. admissions did not occur; the seven new Ph.D. students were distributed across all areas of the department except animal physiology and ecology (three came from Carleton University, two from other Ontario universities, and two from abroad).

Research grants from the department's traditional source, the National Research Council, increased slightly despite more stringent grant selection. Moreover, new sources of research funds, both private and public, were found by faculty and students, including a grant from the Medical Research Council (usually unreceptive to applications from science departments). There was also a large contract by the Canadian International Development Agency (CIDA) for work with the Brazilian Department of Agriculture on traditional farming methods, and two Ph.D. students received healthy contracts from Agriculture Canada for entomological studies.

For the first time in this department two students did their honours research projects by designing and testing teaching modules in snow ecology. These modules were so well received by Ottawa Valley high school teachers and classes that they were prepared for limited distribution with the aid of the Office of Instructional Development. If support is adequate and appropriate students are available, development of this type of project will continue.

Because of limited resources and space and with the continuing large numbers of advanced undergraduate and graduate students, the department has been forced to limit growth by increasing standards. These same limitations discourage any new undertakings, other than consolidating and adapting current programs at minimum expense. Some interest has been shown in collaborative research enterprises, but these have been abandoned or shelved, usually because of administrative complexities requiring too much time to resolve. Two areas of special potential are the application of biological expertise to practical problems in the Third World (where increasing numbers of staff and students are working) and the taxonomic survey of invertebrates, especially insects, in Canada. An additional interdisciplinary area of promise is biochemical regulation at organismal, cellular, and molecular levels.



The biology department has generally supported the upgrading of the successful biochemistry program within the context of the Faculty of Science and the university. Until an imminent Advisory Committee on Academic Planning (ACAP) review is completed, no new programs of graduate study can be formally undertaken, but collaboration with the Department of Biology at the University of Ottawa has been increased.

Two suggestions for the future will be considered by the Curriculum Committee which, it is hoped, may eventually be implemented. These are the revival of a self-contained biology course for non-majors (perhaps off campus) and the extension of the pass B.A. in Biology (including joint majors) to Honours B.A., with an optional honours research project. Neither of these would require courses not now in the calendar.

The main effects of the 1976-77 budget have been felt in evening sections duplicating courses during the day and in the more advanced courses, especially honours and graduate research projects. Evening sections normally have smaller enrolments and thus are harder to justify in times of stringency. It is likely that the department will be forced to reduce, rather than expand, these offerings as instructional budgets effectively dwindle. The main problem for research projects is laboratory space, which limits the number of students who can be accommodated in many areas of biology. The department was especially disappointed that recent decisions for capital investment in the Tory Building did not include reconstruction of unsuitable, deteriorating sections of the building now assigned to the department.

Chemistry

Superficially, the undergraduate numbers for 1976-77 appeared to be disappointing (1,216 student courses) until it is remembered that constraints placed upon admission to qualifying year were designed to cause just such a drop in numbers. In addition, only one course was taught in the summer of 1976.

The quality of the chemistry students graduating in honours in the spring of 1977 was reported to have been as gratifying as it was last year. All seven attained either first-class or high second-class honours and the top student (g.p.a. 10.9 overall, 11.2 in chemistry) was awarded both a Senate medal for outstanding academic achievement and the Society for Chemical Industry gold key for the best graduating student. It appears that students are beginning to realize the limited opportunities available to them with the pass degree, as evidenced by the continued drop in numbers from the ten that graduated in 1974-75.

Graduate studies and research are in a buoyant state, and, generally speaking, morale is high in the research laboratories and by the computer console. Research funding jumped ahead by approximately 50 percent over the previous year to a total of \$385,000, largely due to the conclusion of a number of research agreements and contracts with government and industry (e.g., Department of Energy, Mines and Resources, Health and Welfare Canada, Ontario Ministry of the Environment, Inland Waters, Exxon, Imperial Oil, and Union Carbide). Set against these encouraging figures of what are largely operating funds, there is a serious situation in regard to equipment. More and more of the department's large-scale equipment is becoming worn out and obsolete. Replacement with equivalent (if still extant) items, their cost enormously inflated, would require a very large sum, although increasingly frequent repair bills could top even that in the aggregate over the remaining lifetime of the present instruments. In a recent study at Queen's University, it was estimated that \$30,000 would be required per member of the Department of Chemistry over the next six years for replacements at minimal level. Replacement plus new equipment so as to *update* the facilities and thus remain competitive with research groups elsewhere in the world would require a truly monumental infusion of funds. Presumably Carleton University has no such funds at its command at present, but the administration can use its not inconsiderable clout with governments and granting agencies to impress them with the urgency of the situation. Several of the members of the department have gained national and international recognition, others are on the way; to deny the crisis by lack of positive action is to misunderstand the nature of modern scientific research and to condemn the department's efforts to a level of inconsequential "pottering about."

Attempts to provide offerings for students from other faculties have not met with success. Despite extensive advertising to all other departments, Chemistry 65.106, *Chemistry, Man, and Society* has had to be cancelled for

lack of students. Discussions are under way regarding possible modifications to the course. Chemistry 65.111*, *Chemistry for Engineering Students* will be offered separately from physics in 1977-78 after the friendly divorce action in Science 60.110, *Physics and Chemistry (for Engineering Students)*. A more advanced chemistry course designed for students in engineering and industrial design, while found acceptable during initial discussions, seems to have become a victim of the pressures of other curriculum demands. Further discussions around the chemistry-engineering interface are being planned.

A conscious trend has been initiated with the offering of Chemistry 65.370*, *Industrial Applications of Chemistry*, a course that was much in demand and well received. This is being followed up with 65.371*, *Environmental Chemistry* for which preliminary registration for the summer of 1977 is already unusually large. Both courses, while emphasizing current applications of chemical principles, are also designed with a view to attracting part-time students.

Seminar courses in biological and organic chemistry, 65.581T2, and in physical and inorganic chemistry, 65.582T2, will be offered to graduate students for the first time. Furthermore, it is hoped to be able to reduce the total course load for Ph.D. students to bring formal requirements more in line with those of other chemistry departments in Canada, and thus to remove this identifiable resistance of potential applicants.



Geology

The department continues to yield graduates in high proportion to its limited human and physical resources, and this year's graduating class was one of the largest ever. It is noteworthy that of the four M.Sc. and three Ph.D. recipients, four have commenced careers in mineral exploration and one, the department's first graduate of the applied (non-thesis) M.Sc. program, is using his background of geology and economics in resource planning with the federal government. The department's program continues to have a strong professional bias at the undergraduate level as well. Employment opportunities remain well above the norm for university graduates, although some B.Sc. holders must be content with seasonal or term employment in the mineral sector until they have proven themselves in practice.

Recognition of Carleton's geology research grew in the international sphere, especially in theoretical and experimental petrology, isotope geology, and insect paleontology, where the department's talent and laboratories rank with the best in the world. A major equipment grant from the National Research Council will permit upgrading the electron microbeam analytical laboratory during the coming year. Research and teaching was enhanced by the presence of three visiting faculty members and by continued active co-operation of adjunct professors. The department's contribution to the annual meeting of the Geological Association of Canada was unprecedented and included six papers presented by graduate students. In connection with the meeting, a short advanced course in thermodynamics applied to petrology and ore genesis was given by the Mineralogical Association of Canada. Carleton contributed more of the invited lectures than any other single institution with two faculty members and one graduate student participating. Two of the visiting faculty also lectured to the same session. The results, which were enthusiastically received by a class of about fifty professional geologists and graduate students, have been published and will serve as an important textbook.

A rising public need for knowledge concerning earth resources is prompting the department to seek new avenues for the teaching of non-specialists. Large initiatives are impossible without an increased faculty, but it is hoped that more people can be convinced that some earth science is fundamental to anyone's education, and that the department could offer courses more suitable for arts and social science students as well as the general public.

In the area of graduate studies and research, the applied M.Sc. program is being developed with specialization in mineral resource policy planning; given suitable support, the department expects to advertise this option broadly within the year.

The academic planning group in science has also encouraged the department to extend its formal cross-disciplinary links to include at least engineering and geography. There already exist formal combined honours programs with biology, chemistry, and physics and more

co-operation, across faculty lines, would be entirely consistent with the breadth of contemporary earth science.

In accord with existing priorities and objectives, the department will offer next year a new undergraduate course relating geology to human affairs, designed for non-science students. A third-year field geology course has been created as a vehicle for academic credit in elective field excursions and projects.

Regrettably, budgetary limitations forced the cancellation of an evening-division introductory course last year and delayed the modernization of microscope laboratories for teaching and research. Some progress has been made in these areas, but it remains to be seen whether the department will attain an adequate level of funding for equipment and supplies in the next few years. Funds for faculty and student travel are also inadequate for an active, field-oriented department.

Mathematics

At the beginning of the 1976-77 academic year, the Advisory Committee on Academic Planning report on the Mathematical Science Planning Assessment for Ontario was released. Both the consultants and advisory committee recommended that all Ph.D. and M.Sc. programs in mathematical sciences at Carleton should continue. In addition, the consultants' report on the mathematics department was generally positive and the Ph.D. programs in pure mathematics and probability-statistics were praised on several counts. The consultants also noted in their report that "the department has developed an honours undergraduate program of high quality and breadth." In the area of applied mathematics, the consultants recognized the potential of the department's orientation towards modern applied mathematics, including operations research and some aspects of computing science, and encouraged its continued development. In order to establish further development more firmly in this important field, the department has appointed a new faculty member who is an authority in optimization and its applications in operations research.

Carleton University is in a uniquely fortunate position of being in the national capital region which provides career opportunities in these fields to the department's graduates. As indicated by the ACAP report, Carleton has the programs and faculty strength to play a major role in the further development of the mathematical sciences in Canada. In the coming years this potential should be fully realized, but to do so the current areas of strength must be maintained and indeed strengthened when the opportunity arises.

The majority of the department was actively engaged in research. Several study and research groups in various fields have regular sessions. Over one hundred mathematicians visited the department during the year to deliver lectures on current developments and to collaborate on research problems with members of the department.

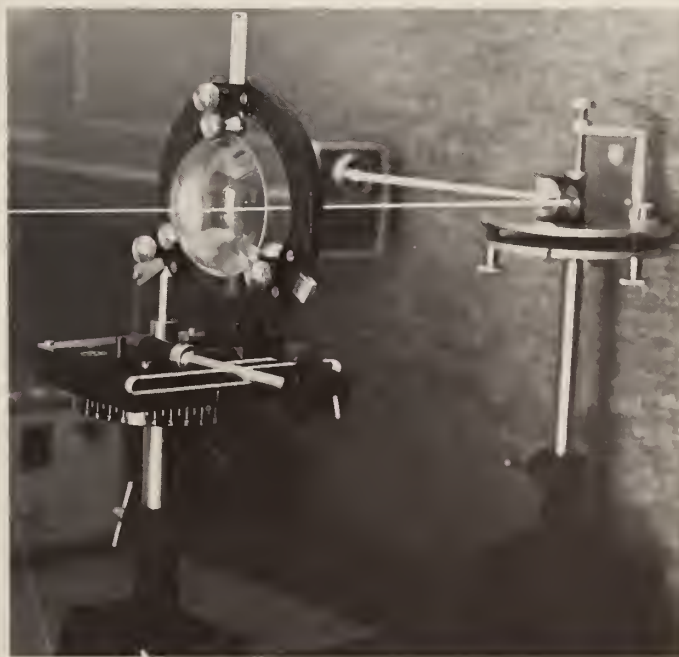
The department was deeply saddened by the sudden

death of Dr. Richard J. Semple. Dr. Semple began his long association with Carleton University in 1954 and over the years established a reputation as a fine teacher who communicated his love of mathematics very effectively to his students.

Dr. M.S. Macphail, who first joined the Department of Mathematics in 1948, retired at the end of the academic year after a distinguished career at the university. Dr. Macphail has been awarded the rank of professor emeritus and it is hoped that he will maintain his close association with Carleton University for years to come.

Physics

In the area of undergraduate instruction, the principal activity of the department was the improvement of teaching in first-year courses. There are two courses in introductory physics, Physics 75.100 and Physics 75.105, of interest to students in the Faculty of Science in the first year. Considerable effort was expended to build up new and thought-provoking demonstration experiments for showing during lectures. It is planned to add a few more demonstration experiments each year as resources permit. Students registering in the first-year courses arrive with a wide variety of backgrounds and abilities, and one of the principal difficulties of a large section of the class is the inability to solve problems. To improve their problem-solving ability, a resource centre was opened with a faculty member on duty on a particular day of the week so that students could drop in voluntarily and be dealt with on a one-to-one basis and helped to gain insight into the solution of problems. This activity will be amplified and improved by introducing helpful audio-visual material during the next year.



To improve their laboratory work, a separate faculty member was put in charge, and workshops were conducted for the demonstrators a few times during the year so that the teaching of techniques of making measurements and of data analysis could be properly carried out and carefully monitored. After Christmas examinations, some of the best students in the class, who expressed a desire to go on further in physics, were separated from the rest of the class and given special project experiments where they could exhibit their initiative and originality. It is hoped that these and other measures to be introduced will tackle successfully the problem of handling the widely differing abilities of students in the first-year courses.

Another new feature was the introduction of a proposal to award three prizes, on the basis of merit, to students of the Physics 75.100 class who participated in the solution of certain challenging bonus problems quite separate from the problem assignments in the course.

The Faculty of Engineering decided during the year to send its students to Physics 75.100 starting in the fall of 1977. As a result, Science 60.110, *Physics and Chemistry (for Engineering Students)* will be phased out, and Physics 75.233*, *Electricity and Magnetism for Engineering Students* will be offered just once more in the fall of 1977, after which it will also be phased out.

The astronomy course in the first year was divided into two sections, Physics 75.190 and 75.120 respectively. Physics 75.120 is considered more suitable for students in science and engineering. And finally, the study associated with off-campus teaching of physics by shipping portable instrumentation and audio-visual equipment is still being carried on.

The Carleton/National Research Council group has produced one of the world's best measurements of the pion mass by making very precise measurements of pionic X-rays and using improved theoretical calculations. Further experiments have been and are being carried out in muonic X-rays to see if neutral weak currents can be detected by a study of light muonic atoms. Two graduate students are participating in these experiments, one at the M.Sc. level, the other at the Ph.D. level.

In high energy physics, an experiment was carried out to search for charmed particles produced in high energy neutron-beryllium collisions at the National Accelerator Laboratory, Batavia, Illinois. Other experiments at Argonne National Laboratory, Lemont, Illinois, on the radioactive and other decay modes of mesons produced in π -p collisions have been completed. The new proportional chambers for these experiments were built at Carleton, and new counters were built at the Science Workshops. An experiment to study N-P charge exchange scattering has also been carried out at the National Accelerator Laboratory. At the Stanford Linear Accelerator Center in California an experiment is now in progress observing new resonances in K-P collisions, using a very powerful particle spectrometer. The results of these experiments were presented at the International Conference on High

Energy Physics held in Tbilisi in the Soviet Union in August, 1976. The data analysis from the K^* experiment previously performed at Brookhaven National Laboratory, Upton, N.Y., is nearing completion, and two Ph.D. theses are expected to be completed by the fall of 1977.

In general, the high energy physics group has been vigorous in its activities during the past year and has produced a number of important results. Several graduate students are nearing completion of their programs. The research program in medical physics (bone densitometry and radiography) has also been progressing satisfactorily.

For some time during the past year, the department has considered the development of a new program in engineering physics. The Faculty of Science Planning Committee has independently urged the physics department to investigate the possibility of introducing this program. Proposals for this program will be made to the Faculty of Engineering in due course. Also under consideration is the possibility of introducing a half-course in biophysics at the third-year level. It is hoped that such a course would be of interest to students in the biochemistry program.

Periodically, requests arise for a combined honours program in physics and chemistry. A renewed effort will be made to launch this program in the forthcoming year. The program can be accommodated with existing resources and existing courses in the physics and chemistry departments.

The committees that were formed to take a long-range look at undergraduate and graduate studies and research programs of the department were quite active. The Committee on Graduate Studies and Research has made a preliminary report with more recommendations yet to come, while the Undergraduate Committee is still doing its work. These committees will report both on growth and phasing out of existing programs with a view to having a strong department.

As a result of cutbacks in the fund for hiring seasonal lecturers, certain of the graduate courses and fourth-year courses are being cycled instead of being offered every year.

Biochemistry

The biochemistry program is a co-operative venture of the Departments of Biology and Chemistry and is administered by a committee drawn from both departments. In 1976-77 there was a continued moderate increase of students in the program.

During the past year there was considerable activity concerning future plans for biochemistry. In response to student representations and the conviction that the now substantial program deserves greater stature and recognition, it was proposed that the university establish a more visible status for the program, with its own budget. In the current situation it was considered impractical to create a new department of sufficient size to be viable, and so it was proposed that an institute be constituted by cross-ap-

pointment of appropriate faculty and adjunct professors in existing departments, and that a director should administer a budget for the institute and the academic program. In addition to providing a focus for students and faculty on campus, the institute could provide greater external visibility as it becomes associated with the scientific reputation of its member; for example, cross-appointed members would acknowledge their affiliation in research publications.

The proposal was reviewed by the Senate Academic Planning Committee (SAPC) and was returned to the faculty for reconsideration in the light of: (a) the view of the dean of the Faculty of Graduate Studies and Research that the proposal should be broadened to include a graduate component, and (b) the view of SAPC that a sufficiently strong argument had not been outlined in support of an administrative structure requiring additional resources beyond those possessed by the Faculty of Science.

There is no graduate program in biochemistry (although students in this area of interest may carry out graduate work in the biology or chemistry departments). The undergraduate program is demanding in its course requirements and has mainly attracted capable, strongly motivated students. The numbers have continued to increase year by year since the program was established. It is felt that the image of the program will be enhanced by establishment of an institute and that it will continue to attract high-quality students. However, a continued increase in enrolment will lead to problems, particularly in the ability to provide sufficient facilities for fourth-year students—both for space in formal courses and for supervision and laboratory space for honours research projects. These are supervised by a proportion of the faculty in biology and chemistry, who also have to provide facilities for their department's honours students.

The program depends heavily on selected courses offered by the Departments of Biology and Chemistry, taught by traditional methods. Most of the courses have a laboratory component, and laboratory experience is emphasized in the curriculum since an understanding of up-to-date methods is essential in modern biochemical training.

Integrated Science Studies

In integrated science studies students plan, in consultation with a committee member, a science and a non-science sequence of undergraduate courses which is individually tailored to needs and goals. These two sequences are often closely linked and form a well-defined, but often unconventional, major. This approach is part of a movement toward the development of university programs that are often specifically vocationally oriented, and student tastes will probably dictate continued emphasis on this approach.

The flexibility of the program is appealing to the part-time student because course patterns in integrated science studies can be more easily adapted to the awkward

timetables that are necessitated for students who work days. However, the availability of advanced science courses *at hours available to the part-time student* continues to be the major problem in the experimental sciences.

A large number of students are now expressing interest in training in the systems and computational sciences without the large number of engineering courses that would be required if a student were to satisfy this interest via a traditional engineering program. Since the Faculty of Science has moved to allow engineering courses to be counted as science continuation credits, greater opportunities are available to include them in the above-mentioned sequencing, particularly in physical science sequences.

There is not much room for expansion of the program into new areas, such as material sciences or into honours studies in biology or geology, because of the limitations on committee and faculty resources for counselling and advisory services.

Science Workshops

The total effort of the shops in 1976-77 was approximately the same as last year, amounting to 24,000 man-hours as compared with 23,000 in 1975-76. However, the fraction devoted to the Faculty of Science rose to 87 percent from 82 percent in 1975-76.

Most of the work done by the shops was for the particle physics program, which involved the construction of large installations for the Carleton group and their collaborators at large accelerators in the United States. However, the shops have also been engaged in constructing apparatus for the Departments of Biology and Psychology. Increasingly, the services of the shops are also being sought by various government departments and agencies.

The machine shop was able to acquire a fine-precision metric lathe this year as a major replacement item. For the electronic shop an optical, semi-automatic, high-speed drill was obtained. It is hoped to be able to pursue a policy of replacing old equipment with modern items as rapidly as possible, as many of the present machines are fifteen to twenty years of age.

Shop income in 1976-77 was \$75,000, of which about \$16,000 came from external institutions.

Teaching Methods

By and large the teaching methods used in the science departments were the traditional lecture with tutorials and laboratory work. Certain modifications previously introduced were, however, continued and some experimentation was also performed in this area.

Resource centres were once more operated in the chemistry, mathematics, and physics departments to deal with problems that students might experience in connection with any portion of their course work. Faculty members and graduate students provide one-to-one assistance,

and in this way a greater amount of direct contact between students and practising scientists is achieved. In addition, instruction in the Department of Mathematics includes a weekly scheduled tutorial period in which the instructor reviews problem assignments, answers students' questions, and discusses any difficulties which the students have encountered.

Other modifications noted in last year's report have been continued by the mathematics department to address more completely the needs of first-year mathematics students in science, engineering, social sciences, and arts. First, the math placement test is used to stream students with similar abilities and needs into the same sections and to identify those students with an unacceptably poor command of basic skills. This latter category of students is then required to take a half-course of precalculus mathematics before continuing. Second, full courses were replaced by semestered courses to give more flexibility in course selection. An analysis of the results and the effectiveness of the first year's experience is underway.

The Department of Geology reported that, with the support of an instructional development grant, work will begin on short, topical videotapes for self-study in the laboratory, using a set of colour videotapes which were purchased during this past academic year. In addition, the department reported that work was continuing on a series of written field trip guides for use not only in the department but also by local secondary school teachers and the general public.

With the help of a grant from the Senate Committee on Instructional Development, work was begun on the production of seven films by the chemistry department to be used in the teaching of instrumental methods in organic chemistry, as well as one covering spectroscopic theories.

Students

The biology and geology departments reported that no recruitment measures were necessary since the quantity of undergraduate and graduate students is more than adequate; indeed, the Department of Biology noted that it has about 10 percent too many graduate and advanced honours students for the space and equipment available in many areas of the department. No formal procedures to limit enrolment have, however, been undertaken.

The remaining departments all employ the use of brochures, posters, and advertising through the High School Liaison Office. Beyond these measures recruitment steps include: an entrance scholarship fund maintained by the members of the mathematics department; increased visibility for integrated science studies in the university calendar; and continued involvement by chemistry with the Eastern Ontario Science Education Centre.

Regarding the calibre of students, the Department of Biology indicated that, while the students are as good as the department has ever had, more rigorous screening was adopted in anticipation of the exigencies of the professional job market. Mathematics continues to attract academically strong students into its honours and major programs. As an indication of this, the Carleton Putman Team placed twenty-third out of 264 teams entered in the 1976-77 North American mathematical competition for undergraduates.

The Department of Physics indicated that the number of graduate students has, more or less, remained the same as in the previous year. Excellent applications still continue to come from outside Canada, but the restrictions placed on financial support for visa students makes it difficult to accept them. The department does not get the best of Canadian students applying, but the quality of the graduate students has remained satisfactory.

Chemistry noted that the current honours students are a highly motivated, and stimulating, group of potentially first-class scientists. Many go on to graduate schools, and feed-back from former students regarding their training at Carleton continues to be positive. One has been awarded a prize at McGill for the best Ph.D. thesis of the year (all faculties) and has so far published seven papers arising from his work. There was generally good interaction between graduate and fourth-year honours students, fostered especially by the honours thesis work which gets the undergraduate students into the research laboratories.

Relations with the Community

Members of the biology department have been involved in workshops and demonstrations with the Rideau Valley Conservation Authority, as well as the Carleton Board of Education and groups ranging from the Ottawa Field-Naturalists' Club to the Royal Ontario Museum. Public tours of the Environmental Laboratories and various addresses to professional groups in Ottawa and farther afield continued at a brisk rate as usual.

Three one-day field trips were conducted by the Department of Geology for the general public. These trips were sponsored by the Ontario Educational Communications Authority and were highly successful, drawing seventy to eighty enthusiastic participants each. The department will offer two new ones this fall, through the Office of Continuing Education.

Faculty members in the Department of Chemistry are becoming ever more heavily involved in professional bodies, as consultants, reviewers of grant proposals, referees for journals, editorial board members of journals and review series, and as external thesis examiners. And the department was active on several other fronts. It successfully hosted the International Conference on Modern

Electrometric Techniques for Investigating Chemical Systems, as well as the Symposium on Organic Synthesis which is becoming a popular, annual event. Similarly, the annual meeting of first-year chemistry instructors was held at Carleton this year and provided a useful forum for debate and exchange of experiences.

The chemistry department also reported that often faculty are asked to respond to inquiries by the public or the media regarding chemical issues. In this connection it is worth noting that one faculty member is currently supervising four students in laying the groundwork for a publication entitled, *A Citizen's Guide to Controversial Chemicals*. This is supported by an Experience '77 grant from the Ontario Ministry of the Environment. In addition, the department is asked for help with high school chemistry projects about a dozen times per year.

On the non-professional level, apart from extensive participation in the work of the Board of Governors, Senate, Faculty of Science, and their committees, and of bodies such as CUASA (Carleton University Academic Staff Association) and OCUFA (Ontario Confederation of University Faculties Association), faculty and support staff are involved in local community groups, a high school parents' advisory committee, scouts, sports administration, and the Family Service Centre of Ottawa; and one faculty member claims to restore his own balance, but possibly not that of his audience, by playing his cello and, occasionally, taking part in public recitals.

Faculty of Engineering

Dean's Introduction

In the academic year 1976-77 the Faculty of Engineering once again faced problems of increased student enrolment, restriction in funding, and shortage of space. As a result of these pressures, the faculty has been forced to recommend restriction of first-year students to some 240. As similar restrictions have been introduced in other faculties of engineering throughout the Province of Ontario, entering an engineering program may become fairly difficult, and the entry qualifications may have to be higher. Restricting the numbers of young Canadians in our engineering undergraduate programs, while still encouraging new immigrants to Canada with engineering qualifications, is a puzzling phenomenon difficult to explain to grade 13 students who are not accepted into engineering.

At present our undergraduate enrolment is 830 full-time students as against a saturation level of some 770, based on a restricted admission of 240 at the first-year level. Female students represent some 6 percent of the undergraduate population with their numbers increasing steadily.

Our common three-year course is operating very successfully. It provides a broad background of university educational experience which more than satisfies the rapidly changing pattern of national and industrial needs in the areas of engineering covered by our curriculum.

Our graduate level program also is, in most areas, now very close to our maximum capacity with approximately 115 full-time and 171 part-time graduate students.

The engineering faculty staff consists of seventy-five members and a number of sessional lecturers. The above situation has extended our capacities to their limit. If, in the future, university policy suggests any increase in enrolment, this can only be achieved by an addition to our staff and increases in laboratory and other space, lecture and drafting rooms, and faculty offices.

Faculty members, though fully extended in teaching workload, managed to do a lot of excellent research. While National Research Council (NRC) grants continue to be of very considerable importance, it is interesting to see the increase in contractual research channelled through the Office of the Dean of Graduate Studies and Research. In addition, the faculty have conducted a considerable number of special continuing education courses in such areas as computer engineering, gas turbine design, and vehicle terrain interaction.

The Faculty of Engineering at Carleton is in the rather unique and fortunate position of being within a very short distance of some of the best government and other research facilities in the country, and our effort to achieve even closer co-operation shows results in at least two dis-

tinctive areas. One is the appointment of government research engineers to faculty as part-time appointees, and the other is the cross-utilization of experimental facilities.

A considerable number of our adjunct professors and lecturers are full-time employees of the government. They provide a most useful and important source of expert engineering experience and knowledge to both our undergraduate and graduate students.

Joint use of research facilities provides Carleton with an access to a variety of NRC and other laboratory facilities, while the involvement of our graduate students and professors provides an additional source of manpower to the laboratories.

It is worth mentioning, as one example, the ultra high pressure research being done with a combination of equipment of the Department of Mechanical and Aeronautical Engineering and NRC, involving very interesting and valuable research into powder metallurgy and compaction of metal powders.

Our Wired City project includes the Stanford University - Carleton link via satellite enabling both universities to share courses. Other project areas include transportation, energy conservation, and building research.

The Applied Instrumentation Laboratory within the Department of Electronics had a very successful year with a number of new and interesting research programs being undertaken. The Department of Civil Engineering has been involved in enhancing and modernization of its facilities and programs.

As usual, the School of Architecture has been faced with a very large number of applications for first-year admission; only a limited number, sixty-four, can be accepted. Since this has been a continuing situation, it might be necessary to consider alternatives of adding to the existing space to allow an increase in first-year students.

The School of Industrial Design had its first graduating class at the 1977 spring Convocation. The school has reached saturation level of first-year intake. Its programs and development can be assessed as most satisfactory. If demand increases, again alternatives of additional space must be considered.

As in previous years, the faculty continues to offer the degree of Bachelor of Engineering in Civil, Electrical, and Mechanical Engineering. Graduate studies leading to the Master of Engineering (M.Eng.) and Doctor of Philosophy (Ph.D.) degrees are offered in the following fields: (1) M.Eng. in Aeronautical, Civil, Electrical, Mechanical, and Materials Engineering; and (2) Ph.D. in Aeronautical, Civil, Electrical, and Mechanical Engineering. In addition, of course, there is the Bachelor of Architecture and Bachelor of Industrial Design degree.

M.C. de Malherbe

Programs and Policies

Civil Engineering

From the beginning of the academic year, a strong attempt has been made to organize the department both administratively and academically. The department was understaffed and, as a result, some courses were not offered this year; others were offered by sessional lecturers and visiting professors working closely with the faculty members. Continued co-operation with the University of Ottawa was promoted in the undergraduate program in the area of water resources engineering and transportation engineering.

The departmental input into the core program this past year saw one new innovation. The staff members responsible for the second-year core program who are currently involved in the writing of a text for the course utilized the draft as course material for the first time this past year. This proved very successful, the draft is being revised, and part II will be completed for the third-year core program this year. And, with the implementation of the Kirkhope Report (that is, a revision of the common core program), the department has assumed direct responsibility for the common courses which fall within the department.

A critical review was also made of the course offerings in the fourth-year program and the graduates being produced. It is the opinion of the department that one year of specialization in the area of civil engineering is generally insufficient. It is therefore the department's aim that the third-year program be revised to serve better the interests of those students who are considering civil engineering as a career. With this in mind, a preliminary program of course offerings has been outlined to prepare the student for the increased demands of industry and/or further studies. The fourth-year program will be developed in four major areas: (1) structural mechanics, (2) building design and construction, (3) geotechnical engineering, and (4) transportation.

Most major changes within the department occurred in the graduate program, both in numbers enrolled in the program and the quality of research students. The number of graduate students was more than tripled from the previous year. Indications are that full-time enrolment for this coming year will be just over thirty, which is, at the present time, the optimum number of students for the department.

The 1976-77 academic year also saw the department implement the program in building design and construction. A great deal of interest was generated in this area and a large number of applications have already been received indicating a specific interest in the area. It is hoped that this aspect of the graduate program can be further developed through co-operation with the School of Architecture.

The department's research activities were aided by the acquisition of a minicomputer on loan to the civil engi-

neering department from the federal Public Works Department. Research for reinforced masonry is well funded through NRC and industry grants which support a full-time research assistant. And joint research projects of the university and the University of Ottawa in geotechnical engineering have received research funds from the NRC and other sources. This year a wood-truss testing machine was on loan from Campeau Corporation. With faculty support, funding made available to the department allowed a beginning to the much-needed updating and repairing of lab equipment and facilities. Plans have now been drawn up to renovate the lab areas to allow maximum use of the space available, both for undergraduate laboratory teaching and graduate research. The value of hands-on research (as well as theoretical) has resulted this year in more active use of lab facilities by fourth-year and graduate students.

Due to stringent budgetary restraints which exist throughout the university, it will be the department's aim to solicit assistance and work with other faculties across the campus in order to achieve some of the above goals in the graduate program.

Electronics

The balance of activity between the undergraduate and graduate programs has been maintained essentially the same as for the previous two years. In the undergraduate program, the department has shared responsibility for the electrical engineering professional program, and for the teaching of electrical engineering topics, with the Department of Systems Engineering and Computing Science in accordance with established practice. The graduate program in electronics has been pursued actively despite a continued situation of understaffing, with approximately the same number of students in the graduate programs as for 1975-76, that is, 154. Interaction with outside laboratories and firms continues to be an important aspect of departmental activity to the benefit of both undergraduate and graduate research programs.

With two appointments all available faculty positions were filled, bringing the faculty strength on campus to seven for the winter term, 1977.

It was with much regret that the department received in March, 1977, the resignation of one of its most valued faculty members who decided to take up permanently the chair of electromagnetic theory at the University of Patras, Greece. A subsequent appointment as an honorary adjunct professor was made in recognition of his continuing involvement in the research activities of the department.

The research activities of the department have been directed mainly in the two well-established directions of strength developed over previous years — solid state electronics and instrumentation. In the field of solid state electronics, the research topics have been concerned broadly with systems applications of integrated circuits,

semiconductor device modelling, and photo voltaic energy conversion devices. The activities of the Applied Instrumentation Laboratory have developed further in scope and range over a wide variety of projects in the areas of measurement and instrumentation technology and communication circuits and systems.

Funding from NRC sources totalled \$191,040 and from other sources \$70,243. No new programs are being proposed. Considerable effort, however, has been devoted over the past year to the updating and development of the undergraduate core engineering program. This has resulted in modifications to the first- and second-year undergraduate programs, the new first year being as now set forth in the 1977-78 undergraduate calendar. It should be noted that one important outcome has been the increase in electrical engineering courses taught in second year by one half-course. The course is the joint responsibility of the Departments of Electronics and Systems Engineering and Computing Science and is to be given for the first time in the 1978-79 session.

Budgetary constraints once more resulted in both the further deterioration of equipment in undergraduate laboratories and the lack of replacement equipment for that deteriorated from sheer age. In addition, the lack of requested support staff resulted in an increase in teaching loads, particularly in the second-year undergraduate program, and a less effective set of laboratory courses.

Mechanical and Aeronautical

The department maintained a satisfactory balance between teaching and research, in spite of the heavy undergraduate teaching loads which were even heavier than normal due to the increase in student members in the first and second years. Extra sections were required for the second-year core subjects, placing a considerable load on the department; overcrowding of the building was clearly in evidence throughout the year.

Research continued at a satisfactory level in the general fields of energy, transportation technology, and manufacturing processes. Difficulty was found with the long-term support of post-doctoral research associates, which is particularly unfortunate in view of their demonstrated productivity. During the year the department suffered the loss of one of its most distinguished researchers whose work in the aerodynamics of aircraft safety has been internationally recognized. As a result of the considerable industrial experience in the department, much of the research is closely tied to industrial problems; work has been carried out in conjunction with the pipeline industry, the atomic energy industry, the gas turbine industry, the vehicle industry, and the air-conditioning industry, to name a few. Members of the department have travelled far afield and have taken the name of Carleton to countries such as Spain, New Zealand, Holland, Germany, England, Italy, and Russia. In addition, the department welcomed a visiting

researcher from Hungary, under the Carleton-Hungary exchange, and this shows promise of developing into a fruitful relationship.

The department hopes to see a continual evolution of the existing three-year common core program, and during the year changes were made to the second year in line with the recommendations of the Kirkhope Report, to be implemented in 1977-78. Further changes to the third year are planned for the following year, but it is hoped these will be evolutionary rather than revolutionary.

The principal problem arising from the 1976-77 budget was the inadequate money available for replacement equipment in the laboratories. Much of the department's equipment receives frequent and heavy use in the hands of inexperienced students and breakdowns are not uncommon. Money saved in the short run merely aggravates the problem at a later date, and a suitable depreciation policy for laboratory equipment must be introduced. The sessional lecturer budget permitted some "unloading" of faculty, but it should be clearly recognized that sessional lecturers are not a substitute for full-time faculty. The normal course offerings were made available, apart from a few graduate courses which are not offered every year.

Systems Engineering and Computing Science

The department was extremely active during 1976-77. Large enrolments in undergraduate engineering and computing science courses kept the faculty members busy with their teaching, while a large number of full-time and part-time graduate students resulted in a successful year of graduate studies and research. Six years of development in the Wired City laboratory culminated this year with the exchange of graduate electrical engineering and computing science courses with Stanford University in Palo Alto, California, using live television with audio talk-back through the Hermes satellite of the federal Department of Communications. The experimental program operated two hours per day, five days a week, from September until March. The students were able to see the instructor at the remote end and to talk to him through an audio link. High sophisticated digital processing was used to allow transmission of the television signals directly to the satellite from a small antenna located on the roof of the C.J. Mackenzie Building.

Another area which was extremely active is computing science, where enrolment in courses has continued to increase. The advent of the microcomputer resulted in extensive instructional activities and research in microcomputer systems and applications. Significant advances in the design of such systems resulted in substantial research contracts in multimicroprocessor systems being awarded to faculty members. One group is involved in COSTPRO (Canadian Organization for the Simplification of Trade Procedures). This terminal contains several microcomputers co-operating in a way which is based on results of the graduate research program.

The development of T1-NET, a revolutionary approach to the design of digital communication networks, has continued offering significant advantages over systems now being installed. T1-NET was tested over the 90,000-mile path through the Hermes satellite to California and back to demonstrate its unique properties. Contributions to queueing theory have been made by two faculty members during their studies of the possibility of optimizing ship movements on the Welland Canal.

The department at present enjoys a position of unique capability resulting from a synthesis of hardware, systems software, and data base structures in real-time computing and information processing. This strength includes the modelling, analysis, design, and implementation of systems in this area, with particular applications in computer communications and signal processing; the department intends to maintain and develop this competence. In the computing science area, the department intends to maintain a continuous review and development of the core courses which it offers.

The department does not contemplate any new undergraduate or graduate programs. However, it does appear that there is a trend towards the formation of a systems option in electrical engineering. Twenty years ago it was quite common for electrical engineering programs to have options, such as power and communications. Extensive use of computers and communications, fostered by a maturation of systems concepts and the revolution in electronic information processing, indicates that job opportunities for engineering graduates in information systems engineering will continue to be excellent during the next ten to twenty years. The department is in a very favourable position at the moment to supply this demand and intends to exploit it.

Severe restrictions have been placed upon the department's academic program by the 1976-77 budget. With the amount of support allocated to instructional equipment, it is not possible for the department to expand and upgrade its communications, power, or control laboratories to accommodate the increased enrolment in engineering. As well, it has not been possible to continue the development of the department's minicomputer laboratory, which is the mainstay of its expertise in real-time computing. It is agreed in the department that all students interested in electrical engineering, both undergraduate and graduate, should take Engineering 94.303, *Real-Time Computings Systems*, which uses the minicomputer facilities. These are now extremely crowded and the phased expansion of them, which was to include approximately five minicomputer systems by 1980, has been completely halted by the lack of funds. Bequests to the Carleton University Development Fund, as well as the normal operating budget, have not produced any resources. It will be necessary to rectify these deficiencies during the immediate future so that the department can handle the demand generated by students from science,

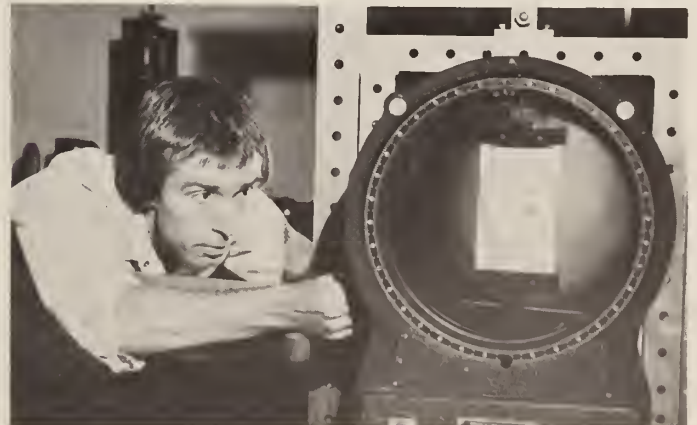
mathematics, psychology, and engineering with a modern program of instruction.

School of Industrial Design

In 1976-77 the school operated for the first time with the complete four-year curriculum as approved by Senate on January 13, 1975. This meant that four full courses and six half-courses were added to the program; however, two of the new half-courses (Industrial Design 85.435* and 85.436*, *Special Industrial Design Studies*) were not offered. As was anticipated in last year's report, the school participated again in the engineering course 88.100, *Engineering Graphics and Design* by teaching the principles of freehand sketching and design to all three sections (six groups of forty-five to fifty students each) during one term.

The work in the school's fourth-year studio concentrated on the projects which were undertaken individually by the students. Some of these were: a tractor for medium-sized Ontario farms, a system for home hydroponic food growing, school furniture for the three to five age group, a componentized bathroom, a wood-burning stove, a tree pruner, a solar energy collector, and a child-proof cabinet door lock. The industrial design project studios formed the real core of the program with several auxiliary courses such as Industrial Design 85.310, *Mass-Production Technology* and 85.320, *Form and Colour Fundamentals* to a great extent integrated in it. Integrated to a lesser extent were such courses as 85.360*, *Anthropometrics and Ergonomics* and 42.208* *Marketing*, the latter offered by the School of Commerce in a special section for industrial design students.

Advanced Studies in Form and Colour (85.421*) and *Form Organization* (85.420*) were given for the first time. They have established a basis for further research and development in this important aspect of design. The new course 85.401*, *Industrial Design Seminar* concentrated this year on assisting the first group of graduates to prepare successfully to build a career in industrial design which, under the circumstances in Canada, is considered to be both extremely difficult and useful.



Based on the experience the school has so far acquired with the four-year curriculum, a study has been initiated to review the present structure. The Curriculum Committee has conducted an extensive inquiry among the students and has collected data to be used in a report in October, 1977, to the Faculty Council and the Advisory Committee of the School of Industrial Design. The first (not yet proven) indications are that the third year of the Bachelor of Industrial Design program, in particular, is overloaded and that a restructuring of the second year might be desirable. Because of the still-experimental nature of the B.I.D. program and the fact that many courses are in a state of development, the Faculty Council and the Advisory Committee of the school are of the opinion that no new program or course offerings should be considered before the present undergraduate program has matured.

Teaching Methods

The Faculty of Engineering continued to employ principally conventional methods of teaching; however, the departments pride themselves on the overall quality of instruction that is well received by students. The major experiment in teaching methodology, which was conducted by the Department of Systems Engineering and Computing Science, was the courses exchange with Stanford University using interactive television. This experiment was a unique experience for both the professors and administrators involved and was thoroughly evaluated to measure the effectiveness of this mode of teaching.

In Industrial Design 85.200*, *Theories of Industrial Design I*, the students started a "generation" project by collecting data individually. These data were then compiled and made available in the form of a compilation to all participating students at the end of the course. This first generation of the data book will also be made available to all students enrolled in 85.200* in the 1977-78 academic year, with the assignment to verify, amend, complete, and extend the data for a revised second generation of the same book which will be used by students in 1978-79 in a similar process. The results of this experiment so far have been very good, and students have enjoyed participating in it.

In Industrial Design 85.201*, *Theories of Industrial Design II*, a method of team assignments was applied (analysis of a product) whereby the teams were composed in an election process by the students themselves based on information which became available from the results of an introductory analysis done by the students individually. This work, in small teams, proved to be very efficient, mainly due to the balanced composition of the teams.

Students

At the undergraduate level, students are recruited on a faculty rather than a departmental basis, this being necessitated by the three-year common core. Considerable emphasis was placed on high school liaison and the pro-

motion of the merits of the faculty's unique engineering program. The Schools of Architecture and Industrial Design continued to utilize brochures and an interview format for admission to their programs.

At the graduate level, brochures are distributed widely; for example, civil engineering reported that its brochures were not only sent to all engineering faculties in other universities throughout the province, but also to all students in the top ten percent of each graduating civil engineering class throughout the province. Both recruitment methods were described as very successful.

The Faculty of Engineering and the Schools of Architecture and Industrial Design received Senate approval for an extension of enrolment restrictions in the first year of their programs. Beyond the first year most departments reported that they were operating at close to capacity.



Relations with the Community

The Faculty of Engineering and the Schools of Architecture and Industrial Design have many and varied contacts with the community, in particular the professional community. Strong associations have been maintained with government and industrial laboratories which are of great benefit in the work of the faculty. Indeed, a great deal of research is pursued in association with outside laboratories and firms.

An interesting example of university-community cooperation is an experiment which was conducted by the systems and computing science department in conjunction with the Ottawa cablevision companies during the winter months. An information retrieval system, "Phone-Info," allowed those who had touch-tone telephones and were connected to one of the two Ottawa cablevision companies to retrieve frames of information on their home TV set. Information on skating conditions on the canal, current movies, blood donor clinics, and many other activities were collected on a daily basis from close to one hundred community organizations in the Ottawa area. This experiment allowed a demonstration of the use of the coaxial cable and telephone systems for the automatic retrieval of information without requiring special apparatus in the home.

The needs of the professional community in Ottawa are also served by extensive research and consulting provided by the departments of the faculty.

Interfaculty Studies At Carleton

Computing Science

Carleton's computing science program provides an integrated sequence of core and related courses in computing which can be taken by students in different discipline areas to provide almost any level of specialization in computing science from brief acquaintance, through one introductory course, to a heavy concentration at the combined majors level. The program not only involves campus-wide co-operation with other jurisdictions of the university, it also takes full advantage of campus-wide computing expertise and computing resources. The majority of courses are offered by the Department of Systems Engineering and Computing Science. However, courses in the program are also offered by faculty and sessional lecturers from the Faculties of Arts and Science, the School of Commerce, the Department of Mathematics, and Computing Services. Faculty in the program are active and expert in virtually all areas of computing practice and theory through research and consulting activities, often in co-operation with local industry, government departments, and research laboratories.

Computing resources for the program are provided by the time-sharing remote batch and batch facilities of the university's central Xerox Sigma 9 computer system and by a variety of minicomputers and microcomputers in the Department of Systems Engineering and Computing Science which is located in the C.J. Mackenzie Building. Access is also possible to the central computing facilities at the University of Ottawa. Computing facilities across the program are oriented towards interactive, hands-on experience with computers.

Special interest streams in computing science are offered at Carleton in such areas as programming and software organization, software and hardware engineering, management and business applications, scientific applications, and theory of computing science. These streams are selected from the following courses:

- 95.201* Introduction to Systems Software
- 95.204* Programming Languages I
- 95.207* Programming Languages II
- 95.290* Computers in Business
- 95.291* Computer Applications in Commerce
- 95.302* Compiler Construction
- 95.303* Real-Time and Hybrid Computing
- 95.304* File Structures and Data Bases
- 95.310* Systems Analysis
- 95.366* Computer Applications
- 95.384* Information Structures
- 95.385* Discrete Structures and Applications

- 95.386* Numerical Analysis
- 95.387* Mathematical Software
- 95.391* Business Data Processing Systems
- 95.401* Operating Systems
- 95.405* Discrete Simulation and its Applications
- 95.457* Introduction to Computer Architecture
- 95.461* Programmable Logic Systems
- 95.466* Switching Circuits
- 95.480* Introduction to Software Engineering
- 95.481* Software Engineering Project
- 95.485* Theory of Automata
- 95.486* Numerical Analysis

The core of the program emphasizes facility in programming and in designing computer programs, familiarity with a variety of programming languages and their appropriateness for different purposes, and practical knowledge of computer system organization at both the hardware and software levels. Theoretical topics are embedded in this core material as appropriate. This does not mean that theory is generally ignored. However, the basis of the program is computing practice rather than computing theory.

This emphasis enables a student interested mainly in applications of computing in areas such as commerce, engineering, science, and social science to pursue a highly relevant program of core courses combined with courses on computing applications in his or her particular area without having to take a sequence of theoretical subjects of interest mainly to computing science specialists. It also enables a student with specialist interests in computer hardware, software, and systems to obtain in-depth practical training in these areas.

For students with a theoretical interest, courses are available which allow specialization in theory of computing science, including computer-oriented mathematics courses. For such students, the computing science core courses provide an important contact with practical issues and problems in computing.

Carleton has a strong graduate teaching and research program in computing. A major strength of the university's active research and consulting activities is the close association and integration with the unique government/research laboratory/industry environment in Ottawa. The graduate program is of benefit to undergraduate students in several ways: faculty expertise ensures that courses are current and relevant; the presence of a large number of highly qualified graduate students provides a pool of programming consultants and laboratory demonstrators to assist undergraduate students with problems; and graduate courses are available in some cases to advanced undergraduate students.

Carleton's method of teaching computing is fairly straightforward. However, introducing students who intend to proceed in the field to computer concepts through the use of a pseudo-computer is emphasized. By programming this make-believe machine, students learn what a computer

can do and more or less how it does it. This forms a firm foundation for future studies and provides the student not only with a conceptual background but also with a vocabulary which may be used throughout his or her studies. Emphasis at the more advanced levels, and the area in which Carleton has some considerable expertise, is that of real-time, on-line minicomputers and microcomputers. There is no sign that the requirements for education in this area will in any way diminish in the next twenty-five years.

It is also interesting to note that the concentration on computing in the engineering undergraduate program is being increased. A required half-course in numerical methods for engineers will be introduced in second year. Modifications being planned for the electrical engineering professional program will include a large measure of courses in computer engineering.

The computing science program is experiencing a large increase in student enrolment, and yet has lost the services of a half-time lecturer. Many course sections are far too large for the proper presentation of the material. If Carleton is to service student demand for courses in computing, additional resources must be diverted into this growth area.

Technology, Society, and the Environment Studies

Under the direction of a committee, interdisciplinary studies are offered to examine some of the complex problems resulting from the interactions of technology, society, and the environment and the effectiveness of the democratized political process in dealing with these phenomena. Because of the complexity and wide range of the problems involved, their understanding cannot be gained through specialized education in traditional disciplines, but rather requires an interdisciplinary approach.

In 1976-77 two interdisciplinary courses were offered. One was designed to introduce students from all faculties to the study of major aspects of the interaction of technology and society, such as technology as a motive force in history and as an element in human culture, the modernization process, science and technology in developing countries, characteristics of industrialized civilization, social management of technology, and major technological systems — transport, communications, energy, and urban systems. The other addressed the problem of resources and the impact of technology on the natural environment. This study included an examination of ecosystems, biogeochemical and energy cycles, food and population, renewable and non-renewable resources, pollution in all its aspects, social management of the environment and its resources, and case studies of the technological impact on the environment.

Each student was engaged throughout the year in a group research project. Some twenty-three projects were completed covering a wide variety of topics, including: development of anti-nuclear attitudes; controversial chemicals in the environment; how society copes with technol-

ogy hazards; moral and ethical considerations relating to northern resource development in Canada; alternative energy sources; and the influence of technology on food production.

The lecture program of each course included participation of faculty from numerous departments (social sciences, engineering, sciences) and many guest speakers (often from government departments) who contributed a broad spectrum of expertise.

Women's Studies

Although there is no women's studies degree program at Carleton, women's studies courses have been offered at the university since 1971-72. Such courses have developed at Carleton, as they have elsewhere, in response to the fact that the experience of women has not received adequate attention from the academic community.

At Carleton women's studies courses are offered by several departments, and faculty members and graduate students are pursuing research in the area in many departments. The Interfaculty Committee on Women's Studies was created to provide a measure of co-ordination for these activities. In addition to its co-ordinating functions, the committee hopes to foster throughout the university an awareness of an obligation on the part of all academic disciplines to include a fuller treatment of women's contribution and experience than has been offered in the past.

Although the committee itself offers no courses, there are a number of courses offered in departments throughout the university that the committee lists in its section of the undergraduate calendar for the convenience of students. This listing represents an informal sponsorship, voluntarily agreed to by participating faculty. Any faculty member involved in teaching these courses is a member of the committee.

The following courses were informally sponsored by the committee in 1976-77 (the same courses will be sponsored in 1977-78):

Classics 13.344, *Women in Antiquity* — a course that provides an introduction to the role of women in ancient Greece and Rome

History 24.354, *Women and Society in Western Europe and North America, 1700-present* — a course that examines the factors that have influenced the changes in women's position since the rise of capitalism and industrialization

Religion 34.201, *Women in Religious Traditions* — a study of the historical attitudes towards women displayed by the world's major religions

School of Social Work 52.506*, *Women and Welfare* — a study of the way in which women relate to the social service structures of contemporary society

Interdisciplinary 04.288, *Introduction to Women's Studies* — a survey course, given at St. Patrick's College

and taught by professors from several disciplines, designed to increase the student's awareness of the position of women in contemporary society

Law 51.301*, *Women and the Legal Process* — a course that examines the manner in which the legal process has affected the status of women

Psychology 49.361*, *Psychology of Women* — a course in which the literature on the psychology of women is examined

Despite a limited budget the committee was also able to sponsor a public lecture on "Sex Differences and Achievement."

To date the Interfaculty Committee on Women's Studies has limited its activities to providing an informal locus for courses that are concerned with the experience of women and with sponsoring the above lectures and seminars. The associate dean of the Faculty of Arts has asked the committee to consider the possibility of setting up an area studies program in women's studies. In answer to this request, the committee's chairperson is drawing up a brief concerning this matter.

Faculty of Graduate Studies and Research

Dean's Report

Thou shalt not sit with statisticians

W.H. Auden

At the end of a period of substantial and extensive growth in the number of graduate programs and in enrolment at the graduate level, it became important in 1976-77 to concentrate on intensive growth. This entailed a priority on quality, a matter the clerisy charged with the administration of the Ontario university system (or supposed to act as its conscience) claim to have an interest in. Their appreciation is, however, at variance with ours. Many references to quality of programs were made in the edicts, decrees, or proclamations received from this clerisy in the last year, but also in the documents promulgating the macro-indicators supposed to measure it. Besides not being particularly helpful, these references to quality and the quantophrenic exercises attached to them have succeeded in deflecting attention away from real concern about quality toward comparisons of mythologies and statistical artefacts.

Our concern for quality is at once more mundane, and "softer," as they say. We have made a renewed search for more effective ways to make the highest and best use of our intellectual and material resources and, to this end, to design better co-ordination of our resources with those of the University of Ottawa. Some progress was accomplished in all these areas: the annual academic performance audit has been reflected in the form of higher quality practices, better supervision, and more commitment of some portion of the faculty to the promotion of an atmosphere of more lively and creative interaction in graduate studies units; the development of a more effective system of financial support for graduate students (in line with the 1973 long-range plan) went through a crucial stage in 1976-77, enabling Carleton to eliminate much waste; and finally, co-operative planning with the University of Ottawa assumed a new depth which we expect to yield high returns in 1977-78.

True, this joint search for quality and efficiency has been slower than anticipated and could lead to impatience if one were not convinced that quality cannot be legislated and that in this era of "the triumph of the subjective" with its blend of corporatism and shirking, the major efficiency gains will come from the development of gumption. Quality and motivational efficiency have long gestation periods.

On the research front, 1976-77 has been a year of exploration, an exciting year which saw the development of more organized research activities and an increasing



flow of funds coming to the university in the form of grants and contracts. The full effect of the research collectives which have blossomed over the last few years has not yet been felt, but they have led to intensive discussions over the formalization of our past practices and the refurbishment of our research administration.

Just as in the area of graduate studies, progress here may be said to have been slower than anticipated. Carleton is at a stage when it has to decide what sort of research enterprise it wishes to develop. Impressive and varied though its research effort is, it is clear that it has not taken advantage as fully as it might have of the wealth of available intellectual and material resources offered by its location. It cannot be all things to all people either, without at the same time losing its own distinctive community and being torn apart by social pressures and suctions.

And yet it cannot be planned in any authoritarian way. Research and scholarship are the very substance of academe and the true locus of academic freedom. The task, therefore, is that of designing freedom, as Stafford Beer would put it, of constructing a liberty machine which entices, stimulates, excites, keeps within bounds, and eliminates licence and abuse while recognizing and respecting the inherent requisite variety of the Carleton research enterprise. Such variety abhors single orderings. Our purpose has been to heighten the quantity and the quality of research and scholarship at Carleton without either directing it or allowing it to degenerate into routine, marginalia, or intellectually trivial if not financially unprofitable ventures; the slowly evolving practices have been

designed to this end. In this area haste is often waste: nous nous hâtons lentement.

Still on the research side, *Research and Studies*, which has always brought to light the work on many unsung heroes, acquired a new look in 1977. In addition to reporting the research interests and recent publications of faculty members, it includes for the first time sections detailing work being done in the organized units and an inventory of funded research.

On both the graduate studies and the research fronts, our work has had to take cognizance of the new circumstances inside and outside the university, of the so-called "new reality," and to adapt to it; financial strains, rampant corporatism, labour law frivolities, and weakening loyalties have all contributed to generating many paradoxes and a great increase in social entropy during the period of interest. It has even been said that reciprocity had gone for good, that we had to come to suffer from *ponziopilatismo*, as Gramsci called it, a generalized incapacity or refusal to accept responsibility. And, indeed, one has to admit that there has been a growing reluctance of the members of the community to act together for their common good, a growing evaporation of community spiritedness, and the sense of a growing difficulty to transcend one's own immediate material interest within the academy. The consequence has been a certain decay in the academy very much as it is in the case of societies in which the erosion of the ethos prevents the right amount of public spiritedness or even "enlightened self-interest" to generate an ability to concert.

And yet it has also been said that quality decreases subjectivity, and this has remained our central conviction. A certain awareness that we are living in a state of conflictive equilibrium, one in which, as Crozier would put it, "each group...cannot rid the system of its partners, nor of its opponents, but will have to live and compromise to achieve objectives," is beginning to emerge. It is becoming clearer that to avoid intellectual and organizational decay, new forms of co-operation, collaboration, and accommodation are required between parties whose fate is now positively correlated. The social inventions which are emerging within the university as a result of this renewed search for quality have been designed with these ends in mind. It is hoped that, among other things, they will restore mutual trust and promote a new type of citizenship in the academy.

On these matters, my hopes are as good as your fears.

Gilles Paquet

Support Services

University Library

The preoccupation of the university library during 1976-77 was with space. With slightly under 60 percent of its entitlement under the rules of the Capital Finance Committee of the Council of Ontario Universities, the library was desperately short of space for readers and for books. An application has been made to the province for approval for an extension to the existing building, but no assurance has yet been given that the capital funds will be provided even though the project meets the rigorous guidelines established for new construction by the Ontario Council on University Affairs.

The critical shortage of space experienced by the library as a whole is most evident in the Science/Engineering Division. For the past four years all issues of serials dated prior to 1950 have been removed from the open shelves and held in a storage area. During the year it became necessary to remove a portion of the science and engineering book collection to storage (selection of books for storage was made on the basis of past use of the material) and about 5,000 books are now stored. At the same time, the date prior to which serials are in storage was advanced to 1955. All stored material is retrieved on demand three times daily (weekends excepted).

The library's collection of government documents has grown from about 45,000 items in 1969 to 150,000 items in 1976. From the outset these publications were accorded only minimal cataloguing treatment, and users of the collection depended heavily on the expertise of the staff in order to make effective use of the collection. The collection is now of a size where this treatment is no longer adequate and the library has joined CODOC, the co-operative documents system sponsored by the Ontario Universities Library Co-operative System. CODOC provides a classification system for the documents collection and also access to the collection by means of a variety of computer-produced indexes.

For the past two years access to four computerized data bases in technical and scientific fields has been offered through the Science/Engineering Division. Beginning in 1976 the other divisions were brought into this program, and at present about fifty data bases in such diverse fields as law, business and economics, parliamentary debates, government publications, psychology, and history may be accessed by library patrons. Subject specialists in each library division have been trained in search techniques and the service was quite heavily patronized during the spring of 1977.

The responsibility for the map library was formally transferred this year from the geography department to the library. The map collection remains in its Loeb Building location, but it is treated administratively as one of the li-



brary's public service divisions. The staff consists of one librarian (head), three library assistants (one full-time, two part-time), and student proctors. The collection amounts to some 65,000 maps and 250 atlases and a small collection of related materials. As well, the library houses a collection of course-related readings for students in the social sciences.

The 17 percent turnover of staff suffered by Administrative Services this year included five senior people: manager of systems, systems librarian, systems analyst, inter-library loans librarian, and chief stack supervisor (the latter by retirement). Despite this, the Systems Department carried on with the serials record study, began the CODOC project, and maintained the other library systems in good order.

In its third year of operation, the Plessey automated circulation system continued to be reliable and relatively trouble free. In the Circulation Section procedures were streamlined and staff reorganized to make maximum use of the system and personnel. Transactions increased by 3 percent, remaining slightly above the half-million mark. Increases in fines and billing charges were instituted with the approval of the University Library Committee of Senate in the fall, and this increase was apparent in the amount of \$54,000 collected at the circulation desk.

During the summer the section undertook a partial inventory of the most heavily used areas in the social sciences and humanities book stacks, using printouts from the call number index and the absence list. Since no inventory had been taken since 1969, the 6.24 percent missing over all is not surprising. Naturally, many replacements have been made for volumes reported missing during this period. The volumes which are missing now are those which have been taken this year, or which were not reported or requested over the past eight years. Statistics indicating use of reserve materials for the first four months of 1977 and showing circulation of all copies of titles on reserve were produced by the Computer Centre. This is the first use of the historical files to produce statistics of individual titles for analysis by the Circulation Section and the divisional staff. The Stacks Section completed the move of science materials to closed storage in an area of the tunnel adjacent to the library and moved some volumes from Social Sciences and Documents to a semi-closed stack in the Acquisitions Department area. A major move of books on the fifth floor to provide additional space for Documents was the most extensive of the year. The process of "compacting" must continue until additional space is available through an extension to the building. Major and minor office moves took place throughout the year as the library staff struggled to utilize the cramped facilities to maximum advantage.

In order to prepare the university's case for additional space, the assistant librarian in charge of Administrative Services, in collaboration with a member of the Carleton Planning and Construction staff, revised the 1971 MacOdrum Library Extension Brief to reflect the present situation, which is that the library is short approximately 65,400 net assignable square feet of its present entitlement.

Taxing staff and machines, use of the audio room increased 66 percent over the previous year. A new and more flexible duplication unit, Telek 300, was purchased to replace the worn and aging Infonics, and ten new Akai units were added to the heavily used playback machines. There are now thirty-two stationary and portable listening-stations in the library. The room was opened additional evening and weekend hours to meet the demand and a part-time staff member was hired to assist in technical operations.

The Special Services librarian conducted a program of orientation for new staff members twice during the year. On eight occasions during the year the Special Services librarian also co-ordinated a program of study skills for the Extension Division of the university. The four-hour sessions in library use and resources were conducted by librarians from the divisional staff. The number of students who attended the sessions varied from fifteen to sixty-five. Special Services, in co-operation with Instructional Aids, produced two slide-tape presentations for use in student orientation, "Finding Periodical Articles" and "The Card Catalogue." Unfortunately, machine problems prevented the programs from being used to best advantage during the first weeks of the term. A videotape program, "Finding and Borrowing Library Materials," was designed by the Special Services

librarian and produced by Instructional Aids. This program, although popular with students and successful as a teaching aid at the beginning of the term, fell victim to technical breakdown and was not used to full advantage in the orientation program. Student tours were given for interested students. More specific subject tours were given by the divisions in co-operation with teaching faculty.

In the area of technical services, despite a number of changes in staff, including the positions of head of the Cataloguing Department, head of the Serials Department, and assistant head of the Cataloguing Department, cataloguing output increased over the previous year, book budget and binding expenditures were resolved with precision, and substantial progress was made towards the development of the new serials bibliographical control system. This reflects credit on the staff who maintained the work during this period of change and shows that the technical services are flexible and able to perform well despite dislocations.

The largest single project begun during the year was the serials records study. A thorough analysis of serial records and procedures will precede the design and implementation of a new MARC-based serials bibliographic records system. At year end most of the major files had been analysed, users had been consulted, and the rough outlines of the new system determined. The sheer size of the project required involvement from staff at all levels, especially from the Serials Department and the Serials Cataloguing unit. Because of the small size of the present Systems Department staff, a continuing commitment on the part of certain technical services staff is required to complete the project. Concurrent with the serials records study, the Serials Department completed a survey of periodical backfile dealers and a workflow study of the kardex operation.

The Acquisitions Department initiated two new dealer selection plans for Latin America (mainly language and literature) and East Europe (English language titles only). The profiles of the major programs were expanded to include materials concerned with film studies.

Student Services

Dean's Introduction

The activities of the Office of the Dean of Student Services included the following:

1. A more active involvement in residence life in accordance with the recommendations of the Senate Committee on University-Residence Relations
2. Membership on the newly formed University Security Committee
3. Increased programming for overseas students and responding to the concerns raised by the provincial policy of increased tuition fees for overseas students
4. Membership on a task force for investigating possible resources for more student housing

5. Membership on a study group to review and respond to the report of the Interim Committee on Financial Assistance for Students
6. In co-operation with the registrar for the Faculties of Arts and Social Sciences, the Carleton University Students' Association, and the ombudsman, the planning and implementation of summer orientation programs for new students.

The valuable contributions of the directors of Student Services, whose reports follow, must be given due recognition. Special acknowledgment, however, must go to Mrs. Jean Loates, awards officer, who after twenty-six years of devoted service to students retired in August. Through her efforts the university experience was made possible for many students.

Athletics and Recreation

Participation in physical recreation programs enjoyed a modest increase during 1976-77. However, general usage of the Physical Recreation Centre on a year-round basis is nearing capacity levels.

The modest increase was due in the main to the development of special programs and facility rentals. In the case of the former, the Fitness Division of the department sponsored a variety of fitness workshops, ranging from a single day to a long weekend format. These workshops provided counselling for business and career persons on the importance of keeping fit, methods of coping with stress, and instruction for current and prospective fitness leaders. One session was tailored especially for high school vice-principals as one of their professional development days.

Rental of facilities to a variety of groups accounted for a good portion of the usage increase. A number of national as well as local organizations selected Carleton for their training camps. These rentals not only assisted the department in defraying operating expenses, but they generated added income for Housing and Food Services as well.

Two important matters will be addressed in the coming year. The first of these is administrative in nature. The department must now establish suitable administrative systems to ensure the continuation of good-quality instruction and participant service in spite of the large annual turnover of student help. The second matter deals with long-range planning. The Athletic Board will be required to determine a suitable allocation of reserve funds to provide additional recreation facilities. While there is no shortage of ideas for new facilities, the challenge facing the board is to select a facility that will both broaden the department's program offerings and still generate sufficient income to more than meet the added operating costs.

Awards Office

The following funds were administered and/or disbursed by the Awards Office during 1976-77:

1. Undergraduate scholarships, bursaries, loans, and prizes

administered by Carleton University — \$405,727.75 to 1,500 students

2. Funds administered by other organizations but tenable at the university — \$171,902.78 to 264 students
3. Loans and grants awarded through the Ontario Student Assistance Program, Ontario Student Loan Plan, and the Ontario Special Bursary Program — \$4,174,651.00 to 4,517 students
4. Funds provided by provinces and territories other than Ontario — \$407,914.00 to 485 students

Carleton University stands in fifth place among the Ontario universities in the total value and number of scholarships available to undergraduate students. The awards officer stated (and repeated what she had stated twenty years ago) that Carleton is still not competing with some institutions in attracting and keeping highly qualified students. This factor was felt not to be solely the result of inadequate scholarships.

Counselling Services

In the 1976-77 university year the University Counselling Services (UCS) underwent a number of changes in the services and programs offered.

The Skill Development Service was greatly expanded with the addition in November of a study skills specialist on a term appointment. As well as individual study skills counselling, an effective reading course was offered by the UCS in conjunction with the Office of Continuing Education. The nine-week, winter-term course was well attended with 150 students enrolling in nine sections.

Three preventive, anxiety-reduction workshops were also offered by UCS. The workshops, each lasting four weeks, were popular and well attended by both students and staff.

The Information Service was greatly improved by the new counselling assistant. The expanded volume, variety, and quality of the vocational and career information resulted in a dramatically increased use of the more comprehensive library. Moreover, the expanded library, along with the use of new improved interest, personality, and aptitude tests, greatly facilitated both educational and vocational counselling which continued, along with personal therapy, as an integral part of UCS.

Health Services

The Health Services programs have remained essentially unchanged. Diagnosis and treatment of illnesses continue to be a priority. There have been a number of major illnesses but, fortunately, no deaths. Severe toxic mononucleosis and influenza have been notably less evident. This probably accounted for the reduction of in-patients in the infirmary.

Desensitization and immunization continue to place a large demand on the nursing staff. There have been no major reactions. Clinics for the administration of swine flu were organized before Christmas and some 900 mem-

bers of the university community chose to attend.

There was a notable increase in the number of venereal disease cases: sixty-six treated for gonorrhoea in the unit and three cases of syphilis diagnosed and referred to the Special Treatment Clinic. This has been one of the most interesting programs this year and is felt to be a direct response to the initiation of treatment in the unit, to efforts at education, and to publicity. It is also very rewarding as early diagnosis and treatment guarantee a cure.

Birth control clinics increased from two to three half-days per week. There was an encouraging co-operative working relationship formed with the Student Birth Control Centre. There has been a gratifying downward trend in the number of therapeutic abortions for the second year in a row.

As a result of increased interest in nutrition, a special program was set up for students suffering from obesity and other nutritional problems.

Emergencies requiring immediate treatment have continued to occur, emphasizing the need to be prepared and equipped to handle such cases.

An educational program was arranged for the residence students. It was held in the early fall and covered contraception, abortion, alcohol, and VD. Judging from the number of students seen in Health Services following this program, it has proven well worthwhile.

Medical staff educational programs were held on a regular basis and each staff member attended selected refresher courses.

Carleton's Health Services has been listed as a resource centre for tropical and parasitic diseases in Ontario.

The Mental Health Service has shown considerable growth. This year for the first time a fourth-year psychiatric resident rotated through the service. This has proved mutually pleasant and beneficial. There has been a general increase in the number of persons seen and the number of visits. Of considerable concern is the unusually high incidence of serious emotional illnesses on campus. The infirmary has proved to be a great help in the management of these patients. Of twenty-four cases referred to the infirmary for treatment, ten were ultimately hospitalized.

Housing and Food Services

The year just past was one which saw many significant changes take place within the residences. A major refurbishing program was initiated. This included providing study halls on each floor in residence, a lounge chair for every resident in his or her room, and the installation of house entrance control systems. In addition, a residence-wide damage/loss control system was initiated with great success.

In the accommodations section a number of policy changes were introduced following the recommendations of a residence life committee. Some of the changes include the provision of graduate student suites in Glengarry House,

a method of room assignment which permits students to receive early assignment if they are returning to the floor they currently live on, the introduction of coeducational floors in Glengarry House, and a significant increase in the room assignment deposit to reduce the "no shows" in September.

The residence community also has a much more explicit and precise residence agreement which all residents enter into with the university when they move into residence. This document and a new and, to date, very effective judicial system have led to a situation where the rights and responsibilities of residents as well as the university are more clearly defined; in turn this has provided for a more stable environment.

All of the above-noted changes have been as a result of the co-operative efforts of students and university personnel on the Residence University Management Policy Board.

Student Services, St. Patrick's College

This past year closer ties were made between St. Patrick's College Student Services and a number of social service agencies in the community. These ties have resulted in an expansion in the number of volunteer programs offered through the college. Such expansion provides the student with an opportunity to acquire practical experience in his or her field of interest, and the student is also able to offer extra assistance to the community in its sometimes understaffed social service projects.

As a result of a co-ordinated effort between St. Patrick's Student Services and the High School Liaison Office, an even greater involvement in the university's liaison program was established this past year. Through this contact with secondary school students, suggestions were received on how to improve the orientation programs so that Student Services is indeed supplying new students with the information that is needed to make their entry into university a pleasant and smooth one.

Continued promotion of cultural activities for the staff and students of the college, special activities for the residence and adult student groups, and increased participation with the Students' Association during orientation and on special projects over the year have all been goals that the Office of Student Services feels were achieved this past year.

It is the opinion of the co-ordinator of Student Services that more effort must be spent in developing an academic counselling facility for St. Pat's students. Many students feel that there is a lack of academic counselling on campus, and it is a major project of the office to improve the situation over the next year.

In operating an office in a small college environment, it is necessary that many departments and groups work together to accomplish successful results. The Student Services office at St. Pat's will continue to encourage this liaison so that strong working relationships will continue.

Office of Continuing Education

In 1976-77 special student registration increased for the third consecutive year. Including the increases in the two previous years, the number of special students registering has increased by 60 percent since the 1973-74 winter session.

The primary factor behind this past year's growth in registration was the expansion of the off-campus program from four to twelve courses, with courses being offered for the first time in Gloucester Township, Rockcliffe Park, Bells Corners, and Arnprior. Nearly 500 students participated in the off-campus program which was comprised of courses offered by the Faculty of Arts. Although the number of courses offered in 1977-78 will remain essentially unchanged, an added highlight of next year's program will be the participation of the Faculty of Social Sciences.

While the off-campus program has represented one of the major areas of growth in part-time studies, more planning must be given to its development and decisions taken concerning the scope of the program. Should random courses primarily at the introductory level be offered, as is the case at present, in an effort to whet the community's interest and eventually attract persons to courses on campus? Alternatively, should courses be offered in sequences so as to allow students to complete a degree program off campus in the fashion which the students in Lanark County are now requesting? Such decisions must be made in the near future so that false expectations are not developed in the communities which Carleton is serving.

The office's study skills course, which introduces students to the academic expectations that will be made upon them as well as some of the study methods which will help them meet these expectations, again had a high enrolment. This course and the Department of English's Writing Tutorial Service provided the base from which an expanded learning skills program was developed as an experimental project. One of the more significant facets of the experimental program was the effective reading course offered under the auspices of Counselling Services. The reading program was typical of several of the other services provided by the learning skills program in that it received financial support for development purposes from various offices across the university.

The Extension (non-credit) Division of the office experienced its most successful year, recording new heights in registrations and net income. An increase of 10 percent in course registrations was noteworthy in light of the fact that some of the older, more popular, and financially lucrative non-credit courses were eliminated in favour of more academically oriented courses. Moreover, contractual arrangements with a number of client organizations were significantly improved.

The division experimented successfully with offering courses in a variety of time formats, periods, and packages, such as weekend courses, weekday morning classes, and so on. Not only do courses offered in these formats attract stu-

dents who may not be available during the traditional weeknight time slots, but they help alleviate the heavy demand on classroom facilities at that time.

One of the more significant ventures of the Extension Division was the program offered in co-operation with the School of Social Work. In this program the Extension Division provided developmental assistance and administrative support to the courses which were arranged by the School of Social Work. The success of this joint venture could very well serve as a prototype for future endeavours where other departments or schools could present a series of non-credit activities in co-operation with the Office of Continuing Education.

In terms of individual courses, the "Women in Action" lecture series which had over 100 registrants was one of the highlights of the year's program. As the fifteen lecturers for the series included both Carleton faculty members and prominent persons from the Ottawa community, the course reflected one of the major characteristics of the Extension Division's program. Not only do non-credit courses provide an avenue through which Carleton's academic resources are extended to the community, but they also provide an opportunity for academically qualified persons outside the university to contribute to the educational process in an instructional capacity.

To summarize, the Office of Continuing Education experienced a productive year during which emphasis was placed on upgrading existing programs and services with a small but important expansion of new learning opportunities.

Instructional Development

Interest in the area of instructional development at Carleton University continues to grow, as shown by the increased activities of the Office of Instructional Development and by the large number of grant applications for internal funding.

As in previous years, the primary approach of the office is to provide the means whereby individuals and departments can carry out improvements and innovations in their course programs. When budgets are tight, the traditional policy of budgeting little or nothing explicitly for the continuing improvement of the processes of teaching and learning has increased merit in the eyes of many. Yet it is in such circumstances that directed funding is requisite, if only to prevent normal ongoing efforts from being stifled by budget restrictions and to ensure that the most recent results of research are reflected in the university's undergraduate programs. During the current year, \$53,000 (\$35,000 from the Ontario Universities Program for Instructional Development and \$18,000 of internal funds) has been awarded to faculty members involved in changes and improvements to curriculum and workshops and seminars for graduate teaching assistants.

The funds handled through the Office of Instructional Development have been utilized in five major areas: ad-

ministration and co-ordination, information services, small grants, professional development, and projects. These categories define the five mechanisms through which the Senate Committee on Instructional Development pursues its objectives. This work is guided by the committee and its several subcommittees.

One of these, the Task Force on Computer-Aided Learning, has prepared a report, "Computer-Aided Learning at Carleton University: Survey and Recommendations," and the Task Force on Classrooms and Seminar Rooms has recently released a report recommending a long-term program to upgrade existing classroom facilities.

As one example of work carried out through the grants program, funds were provided to enable the Department of Geography to hire a full-time person to "Canadianize" an international text used at the first-year level and to restructure the course. In addition, the support allowed for faculty release time to develop a second-year physical geography course aimed at integrating understanding of the "man-natural" environment. Other projects were undertaken in the Departments of Biology, Chemistry, Civil Engineering, Economics, French, German, Linguistics, Mathematics, Physics, Political Science, Psychology, and Systems Engineering and Computing Science as well as in St. Patrick's College and Computing Services.

Another aspect the Office of Instructional Development has been exploring is the preparation of credit courses and materials to be offered off campus. These courses now require the lecturer to travel to the location each week. Funds have provided an opportunity to look at the preparation of non-traditional course materials. It is envisaged that the department could go to the community with a mixture of print and non-print materials such as films, video or audio cassettes, booklets, and study guides. Each course would have a local tutor who would bring the class together once a week, and intensive sessions would be held with the professor for two or three consecutive days several times during the course. In addition, the students would have access to the professor through a telephone-line arrangement. A feature of offering courses in a non-traditional way is that they are not locked into the academic year and can be offered at times convenient to students in a particular community. To this end, grant money has been allocated to develop modules of multimedia material for a course on the psychology of early childhood; packages of material which will allow students to study on their own while taking the contemporary economics course; and for development of a broadly based course in environmental studies which will use local media, such as newspapers, for part of this course. A graduate student assistant has recently conducted a survey with off-campus students to ascertain what they expect from the university and to obtain their reaction to courses offered in this way.

Funding has allowed the office to explore another method for reaching a wider public, that is, the use of television. A cable link has been installed which runs from Carleton's television studios to Ottawa Cablevision Limited. The

money for this project is going toward the development of human resources at the university rather than equipment expenses. Ottawa Cablevision is now broadcasting a daily half-hour newscast, five days a week, produced by third-year students of the School of Journalism. No charges were made by the cable company to transmit the program and the students operate the equipment.

To make possible a wider use of television as a teaching medium, the university is carrying on discussions with the Ontario Educational Communications Authority and local cable companies concerning Carleton's submission of an application to the Canadian Radio-Television Commission for a dedicated instructional television channel for post-secondary education in the Ottawa area. It is anticipated that the application will be made within the next several months with a view to the university being in a position to offer courses on cable during the winter term of the 1977-78 academic year. Not only would the medium allow students to learn through their television sets at home (thus relieving, somewhat, the shortage of classroom space on campus), but it would enable the university to reach people who find it impossible due to time, distance, or handicap to travel to the campus each week.

Carleton has had a long tradition in continuing education, having been founded for that purpose, and this is the source of one emphasis in instructional development. The need for different approaches in instruction is more evident here than in the traditional undergraduate programs, and the interest in innovation is stronger. It can be expected that experience with new methods in continuing education, as outlined above, will be reflected back into the university's other programs. Thus, many of the instructional development projects have, at least in part, an orientation to continuing education.

The sum of \$5,000 was set aside for small grants and this has been used to allow individual faculty members to carry on experimentation with courses, attend conferences/workshops, relating to teaching, and visit other institutions carrying on innovative work in their area of interest.

With the assistance of a grant from the Ontario Universities Program for Instructional Development, the Office of Instructional Development held the 1976 Instructional Development Summer Institute. This was a series of six two-day workshops on teaching methods and related matters held during May and June. Faculty, students, and staff from Ontario and Quebec universities and colleges attended the sessions.

Funds are not the only need, since most groups or individuals proposing projects seem to have little knowledge of the supporting resources or expertise available at the university. Consequently, an important function of the Office of Instructional Development has been one of co-ordination.

Funding and other assistance from the Office of Instructional Development allowed the Office of Continuing Education to co-ordinate and expand a number of local activities throughout the university into an effective learning

skills program for the whole campus. The courses in the program, which are offered to students to help them derive maximum benefits from their studies, had been in the past restricted to particular disciplines. A new course, *Effective Reading*, designed to increase the reading skills essential to university study, was introduced into the program. As another example of co-ordination, manual typewriters, being replaced by electric models in the School of Journalism, were obtained, repaired, and placed in resource centres in the MacOdrum Library, the School of Social Work, and the university residences study area.

In addition, access to knowledge available outside Carleton has been provided by a newsletter, by workshops and lectures, through personal contacts, and by maintenance of a substantial collection of relevant literature.

Through the dean of Graduate Studies and Research, five graduate student assistants were obtained to work with Carleton faculty and staff on instructional development projects. The projects included research on the effects of Carleton-produced media programs in specific courses; setting up a newspaper clipping file system and carrying out library research on a proposed course on the psychology of early childhood; researching and writing a report, "Suggestions for Improved Delivery in Carleton University Continuing Education Courses Offered in Lanark County"; working with students enrolled in the effective reading program; and assisting with the activities of the Economics 43.101 M Resource Centre, in addition to establishing a resource centre for a new undergraduate program in Canadian studies.

The program of the Office of Instructional Development has been based on assisting projects — both large and small — in instructional development. Particular methods for improving learning have not been promoted, nor have teaching tutorials or other methods to improve the individual's teaching skills been emphasized. Rather the office has attempted to see that the maintenance and improvement of teaching and learning has a place in the priorities of the institution along with research and other scholarly work, administration, and the always demanding task of presenting the university academic program.

As more and more individuals become involved with projects in instructional development, these same people are found attending workshops and conferences on teaching and learning. It is hoped that their interest in these matters is contagious — that their colleagues also begin to become involved. It looks as if this is happening.

The long-term goal is a university which is actively engaged in learning by both the best practice of traditional methods and by the application of newer techniques and philosophies. This requires resources clearly identified for this purpose. At the moment these are being provided by the university and by the Ontario Universities Program for Instructional Development. If the Ontario Universities Program for Instructional Development is decreased over the next several years, it is hoped that sufficient interest and activity will have been generated at Carleton to make

the efforts here self-sustaining. After all, the concern for, and quality of, learning at a university is an important factor in its attractiveness to students. Thus, enlightened self-interest alone may prevail if instructional development can prove itself effective.

Instructional Aids

Although 1976-77 has been the busiest year to date, it has also been one of the most successful years since problems and complaints were down and quality up. In the distribution and booking area, the total workload is up 12.3 percent over last year. Film bookings alone have increased by 54 percent; other bookings have not increased as drastically because a cut-off on the number of requests at one time has been introduced, and more permanent equipment has been installed in classrooms which does not appear in the statistics. The department responded to more requests and to a much wider range of media productions than ever before, and Theatre A has been able to provide more flexible facilities for theatre users.

While the basic administrative structure did not change, minor changes made in media production over the last year proved to be advantageous to the production advisers, allowing them more time for consultation in the preparation and production of academic material with more productions being done for various faculties on campus. Some additional part-time help was needed in the booking area due to the increasing number of tapes now on file. To handle this growing area and the booking of hardware, the department has had several meetings with personnel from the Computer Centre in the hopes of computerizing the hardware and software to improve the efficiency and accuracy of the current system. The projected date for testing is July 1, 1977, with full operation by September. The department is also in the process of updating a catalogue of film and audio-visual tape material and providing this information to faculty and students. To handle the increase in the equipment delivery area without increasing staff delivery costs, additional screens and twenty-eight overhead projectors have been permanently installed in classrooms. One area that is making increasing demands on services is film studies. The demand will affect the booking section mainly but also will increase the work in the area that handles the films.

Due to increased demands for the viewing (or previewing) of videotapes by faculty and students, a viewing area was set up in the hallway of the sixth floor of Southam Hall. Unfortunately, this proved so successful and created such a traffic problem that it had to be moved to a less desirable location.

A joint project with the library to catalogue all audio-tapes is nearing completion. However, the department now hopes to expand it to include films and videotapes. In addition to this, a catalogue of all material is currently being worked on with the target date for publication being August, 1977.

During second term an arrangement was made with Bell Canada to install a cable (video and audio) from Carleton to Ottawa Cablevision. This was done on an experimental basis, for Bell as well as for Ottawa Cablevision and Carleton. This proved to be a very successful experiment for all, and follow-up of additional educational programs is in the planning stage.

As in the past two years, very little money was available for the purchase of new equipment. However, the department was able to purchase a limited number of new overhead and slide projectors and some audio equipment from rental income derived from renting equipment to on-campus conferences.

Computing Services

During 1976-77 the university installed and developed a computer communications link with the University of Ottawa. Work is progressing on making the link more convenient to use, for example, providing output routing and possibly making the link bi-directional. The University of Ottawa has been most co-operative in installing some IBM-oriented computer programs and it is expected that Carleton's usage will increase this upcoming year. There has also been increased usage by the University of Ottawa of some of Carleton's timesharing offerings.

A project is nearing completion which will permit minicomputer communications with the Sigma 9 system. Initially, users of minisystems in the Department of Systems Engineering and Computing Science will be able to develop PDP 11 software on the Sigma system using the PDP 11 emulator; then, using the file transfer facility, transmit the file to the minicomputer for further use and processing, or for data file transfer. It is hoped that other minicomputers on campus will make use of the facility as well.

An evaluation of the latest release of the operating system (CP-V E01) was begun, and apart from the university's wish to remain current, this release of the software is desirable in that it supports the newer technology of disk units, a factor which is becoming extremely important. With increased usage over the past several years, the shortage of main computer memory has occurred. As a result Computing Services is now evaluating a proposal from Honeywell for the installation of an additional memory. This would increase the university's main computer memory by 25 percent on the dual CPU system. With the increase in memory the university will be in a position to accommodate more half of the group's time, the remainder being spent on several major projects and other responsibilities. Some of the most important of these were the PDP 11 emulator, which allows computing science students to write PDP 11 programs on the Sigma 9, thus reducing the load on the Faculty of Engineering's minicomputers. This major project involved up to five members of the group over the summer months. A variety of packages have been made available in the area of social sciences-oriented data analyses, including

DATATEXT, BMDP (bio-medical programs), a new interactive analysis of variance programs, OSIRIS III (organized set of integrated routines for investigation with statistics), SNAP/IEDA, and ESP (econometric software package). The latter three are available on the IBM 360 at the University of Ottawa.

Computer graphics and plotting software developments in this academic support group area have continued, with the object of improving accessibility and ease of use of all plotting and interactive graphics facilities. A new drum plotter has been acquired and can now be used on-line and accessed by all the graphics library software. A grant has been obtained from the Instructional Development Committee to aid with the extension of the interactive graphics service to the Loeb Building. Also several new and improved mapping programs have been made available.

Assistance was given to the Department of Electrical Engineering to install software on the Varian minicomputer. Some of this software will be used by the department in its integrated circuit/pattern generator project, for which it received a grant from the National Research Council.

As usual, considerable effort was spent on maintaining the recurring version of SPSS (statistical programs for the social sciences). In addition, time was spent on planning and consultation with users regarding Version 7 of SPSS with the result that the conversion to Version 7 was decided and scheduled for May to September, 1977. One part-time and three full-time summer students were hired to work on the project.

In the administrative area of computing, a change is planned in the structure of the Administrative Support Group. Because of the high degree of maintenance required on implemented systems, it often occurs that staff working on development have to stop and switch to maintenance of existing systems. This causes delays in development and implementation of new systems, resulting in user dissatisfaction and frustration. To counteract this, the library and financial subgroups will be combined and split into a development section and applications section, each headed by a supervisor. The development section will be responsible for the development of all new systems from the feasibility stage right through to implementation, and the application section will be responsible for the running, maintenance, and documentation of all implemented systems.

The first phase of the new general ledger system occurred January 3, 1977, and the second phase will occur in June, 1977. This has been a very extensive undertaking requiring the co-operation of many departments on campus and will affect virtually all areas of the university. Over the next several months Computing Services will be involved in further refinements to the system and in troubleshooting problems.

In the library support area, work started on a study for a new library serials system, an effort which promises to be substantial. The library also decided to obtain the co-operative documents system referred to as CODOC and the sys-

tem was tested and implemented in April. It will not be fully operational until the retrospective conversion has been completed in the fall of 1977.

The Student Records Group is completing an extensive reworking of its systems revolving around a new data base structure. A good portion of this group's efforts has been directed at accommodating changes required in reporting to the various external bodies, such as the Ministry of Colleges and Universities and Statistics Canada, as well as fulfilling the university's internal report requirements.

Finance Office

During 1976-77 the final steps were taken preparatory to implementing the new general ledger system which is to become operative on May 1, 1977. During the year financial forms were reviewed and revised to accommodate the new account number which is the foundation for the system, and in January 1977, an establishment control system encompassing all full-time staff positions on campus was inaugurated. The new control, which is part of the financial system, is used in the budgeting process and will be a useful aid in controlling full-time salary expenditure and projecting the effect of salary changes. During the course of 1977-78, various new reporting forms and other capabilities of the system will be phased in. The new system will owe its success largely to the friendly co-operation which has been exhibited by the staffs of the Computer Centre, the Business and Finance Offices, and the Personnel Office throughout its development.

Personnel Office

During 1976-77 the Personnel Office was reorganized according to concepts developed by an organizational study in 1975. The reorganization was completed in October, 1976.

The university's first agreement with the new, certified Carleton University Support Staff Association (CUSSA) was concluded during the 1976-77 academic year, as were new agreements with the faculty union (CUASA), the Canadian Union of Public Employees Carleton local, the Graphic Artists (GAIU), the Operating Engineers (IUOE), and the Canadian Guards' Association.

In addition to providing necessary relief to administrative staff in the area of labour relations, the office reorganization has afforded additional expertise in the areas of training and development and compensation and benefits.

The period May, 1976, to April, 1977, was a very productive year for the Academic Support Group. Full-time staff members were assisted by part-time students hired to perform basic consulting and program advisory duties. This system allowed staff members to devote more time to advanced consulting and other duties and generally increased the consultative services offered by the Academic Support Group. Part-time student advisers were on duty in the com-

puting centres in the Administration Building, the Loeb Building, and the C.J. Mackenzie Building. In addition, full-time staff were available for advanced consulting, at various times, in the Administrative Building and in the Loeb and Mackenzie Buildings.

Continuing activities involving consulting, maintenance and the updating of software and documentation, and small programming and other projects took approximately one-time-sharing ports on the system and should be able to provide additional student terminals. The hardware proposal mentioned above also covers replacement of the installed disk units with the newer technology, larger, and faster Honeywell disk units. Current plans, subject to the acceptance of the Honeywell proposal, would see the installation of the disk units during the Easter period of 1978 and the memory during the summer of 1978.



The compensation group has been working toward the design and implementation of a new classification system and salary administration program which will be completed sometime in 1977. In addition, the training and development group has been engaged in developing training workshops designed to improve working skills and enhance the effectiveness of the traditional consultative management process at Carleton.

General Services

The retirement plan text has been revised to incorporate all the changes which have been approved by the Pension Committee, Board of Governors, Pension Committee of Ontario, and the Department of National Revenue. The revised text will be submitted to these bodies for approval and distribution in the next year. Substantial work has been done on preparation of reciprocal agreements with the Public Service Commission, the provincial government, and several Ontario universities having similar plans to Carleton's. It is expected that these will not be completed for some time. During 1976-77 the director worked with the new director of Personnel for an orderly turnover of the various projects and files.

The mail service has obtained new equipment which will enable it to handle the increased volume of on-campus and off-campus mailings more efficiently. The volume of mail in and out has increased and service has been maintained with no increase in staff.

General Services has been particularly busy and successful in continuing to obtain equipment and supplies efficiently and at a minimum cost.

A committee was established to examine the possibilities of instituting a computerized central store system, but on the advice of representatives of the Computer Centre, it was decided not to proceed with the investigation as the Computer Centre will not be able to accommodate such a system for some time.

During the past year the length of time for parking plug-in service was reduced to a three-month period — the first week in December until the first week in March — in order to conserve energy. This change was generally acceptable throughout the campus and will continue. The control of parking on campus appears adequate and a minimal number of appeals and complaints have been processed. This section operates at no cost to the university, since all expenses, including mortgage payments for the parking garage, are paid for by users. Although costs of services, supplies, and salaries have increased, the number of users has also increased, and through close scrutiny of expenses it will be possible to maintain the relatively low fee structure for the next year.

The Administrative Services division has been researching the possibility of introducing a word processing service, in conjunction with the typesetting service at present offered in Graphic Services, in an effort to reduce communication costs and to increase productivity through better utilization of staff.

The new manager took up his duties in the Bookstore in April, 1976. Several physical changes have improved both the store's appearance and the locating of merchandise throughout the store. The computerized system has been in operation for some time and only minor adjustments were required to streamline and co-ordinate all areas of buying and selling. Requisitions which previously had been backed up for four to six weeks are now being

handled on a daily basis with no backlog encountered whatsoever. The store is badly in need of new cash registers. The new ones, when purchased, should reduce the line-ups at rush periods and allow for an automatic daily inventory. Sales once again have increased in volume over the past year to a greater extent than inflation, putting more strain on the inadequate space.

General Services has continued to co-ordinate telephone facilities on campus to ensure that the most economical and effective systems are provided throughout the university. During the past year an experimental staff telephone directory was distributed which did not meet with the approval of the majority of users and is, therefore, being reviewed; changes will be made.

Volume of work in all Administrative Services departments has increased substantially again during the past year, and there has been a reduction of one staff member. Only a minor increase in the cost of the services provided was necessary in spite of the large escalation in the cost of supplies and labour. New equipment will be installed in some of the satellite units on campus which will provide better service at no increase in costs to users and possibly some reductions.

Physical Plant

The most notable achievement in the Physical Plant organization in the past year has been the results measured in the Administration Building in the twelve months following the "mechanical retrofit" which effected a major change in design of the mechanical system from an energy-wasteful design to a conserving configuration. This has been accomplished by changing from the original concept of cooling all air to meet the needs of the hottest exposure of the building and then reheating it to comfort levels for the other three exposures — a very wasteful system which used energy twice, first to chill and then to reheat — and by adjusting air volume to suit the needs of the zone in question rather than the provision of constant volume regardless of need.

These two changes and other adjustments have cost the university \$74,000; however, in one year there has been a saving of \$33,500 of today's fuel prices. An original prediction had projected a pay-back period of over three years, but it now appears that the university will be able to cover this cost within approximately two years. Similar techniques have taken place in both the Loeb Building and the MacOdrum Library. Results there have been worthwhile but not quite as impressive as those in the Administration Building.

It is hoped that financing can be found to continue this practice. The waste is substantial in other campus buildings and the university must take action to bring this waste under control.

The university community has already noted that a number of women have been added to the security force.

They have come in as full-fledged patrolwomen with all of the responsibilities, privileges, and salary of their male counterparts.

Another project which will have considerable effect on the university's future control of the building environment, as well as further reductions in the use of energy, is a new computerized central control system. It will eventually provide the ability to program each building to suit its needs to the time of year. From a central location conditions could be monitored; most corrections could also be made from the central point. Malfunctions and discomfort might still occur on occasion because breakdown cannot be eliminated, but due to improved monitoring, corrective action could be accomplished more quickly. The first phase of this project will be completed in 1977-78, with the second and third phases in the following two years.

Information Office

Information programs directed to prospective students were a major priority of the Information Office during 1976-77. A program of producing undergraduate discipline and faculty brochures, which had been started in 1975, was completed. These brochures have been used extensively by the High School Liaison Office and individual departments to introduce Carleton's undergraduate academic programs to high school students. To complement the Faculty of Science general brochure, disciplines brochures in science (not part of the first production plan) will be produced in the fall of 1977, and several undergraduate brochures in other faculties will be updated.

A start was made to produce a specially designed and co-ordinated graduate discipline brochure program for use by students considering graduate studies at Carleton. This program will be extended for 1977 in conjunction with the dean of Graduate Studies and Research. Some twenty graduate program flyers were standardized and produced to introduce students to graduate studies. It is anticipated that a complete series of flyers will be available in 1977.

General information publications, such as *This is Carleton* and *Campus Information* as well as a new 3-D campus map, were produced to serve the interests of prospective students and also those of the general public. These will require updating in 1977. The *Campus Information* brochure and the 3-D map will be combined in one brochure for general purposes in 1977.

In addition to these publications and official university reports, a wide variety of brochures, flyers, and posters on conferences, guest lecturers, and cultural events was published through the publications service provided by the Information Office in co-operation with appropriate offices of the university and Graphic Services. A *Guide for Handicapped Students* was edited for publication in the fall of 1977. Other plans in this area include general information programs directed to part-time students, particularly those over twenty-four years of age, and publicity for special

events, including a combined Faculty of Science and Faculty of Engineering open house in the fall, a major biblical studies symposium, and some of the planned public lecture series and conferences sponsored by departments and institutes.

Due to inadequate funds for publicity in this area, the Information Office is operating in concert with departments and faculties to devise new financial arrangements to publicize activities of interest to the university and the general public. Cut-backs in funds available for publicity mean that more time and energy must be devoted to administration, reducing the time available to plan appropriate publicity programs. An attempt to co-ordinate events and publicity requirements will be conducted on a trial basis with the Faculty of Arts for the 1977-78 academic year. This effort will be evaluated for possible general application in the university. While the current arrangements are not ideal, they do give departments and offices an opportunity to provide input. This process often contributes to increased understanding of the interrelationship between academic and administrative functions related to information and public relations. In general it is hoped that a more promotional and less institutional approach to publicity will contribute in a positive way to Carleton's image.

Informal discussions have been held with members of relevant offices, departments, and interested members of the university to lay the groundwork and to seek funding for a recorded history of Carleton's thirty-five years. It is hoped that a history of Carleton will be published.

During 1976-77 *This Week at Carleton* focused on official university meetings, coming events, and major academic activities of the university. The weekly four-page format, with periodic four-page supplements, seriously limits the space available for feature articles on research programs and special projects of the university compared to the space available when the Information Office published a twice-weekly tabloid, *This Week Times Two*. Ways to increase coverage of academic activities are being explored for the academic year. Supplements will continue to be produced in *This Week* for the Athletics Department and the Students' Association (at registration) as one way of providing information which could not otherwise be disseminated. As well, reaction to special issues of *This Week* produced for Convocation ceremonies in 1976 was very positive, and it is expected that these issues will continue to be published for Convocation in 1977 and future years.

Media interest in Carleton was maintained during the year and increased particularly in the areas of research related to science, engineering, energy conservation, and transportation as well as in entertainment and cultural activities. Papers, conferences, and interviews concerning national unity, peace, university financing, labour relations, and special events were also well covered.

The Carleton University Speakers Bureau continued to serve the Ottawa and district community by providing volunteer speakers (130 compared to 90 in 1975-76) to high

schools, service clubs, women's groups, and other community organizations on a wide variety of topics. For example, twelve members of faculty from across the campus spoke at one local high school, Woodroffe High School, on such diverse subjects as genetics, astronomy, airport planning, nuclear power, taxation, drugs and behaviour, human evolution, energy in society, law for high school students, journalism, the role of today's mathematician, and the challenge of leisure. This undoubtedly gave Carleton a high profile at that school and complemented the high school liaison program.

Activity in the area of advertising increased due to co-ordination and placement of camera-ready copy for academic, cultural, and personal activities sponsored by departments, associations, and administrative offices. In total, some 130 additional university advertisements were placed in these categories. Co-ordination of advertisements through the Information Office allowed for a savings in advertising costs to the university as a whole and provided for improvements in appearance and accuracy of advertisements placed on behalf of the university.

The Information Resource Centre expanded still further. Material was retrieved on a daily basis for faculty, staff, and students. New methods to maintain and retrieve university documents will be examined in the face of physical space limitations. In addition to housing agenda, minutes, reports, and terms of reference for all open university committees, the Information Resource Centre maintains information on post-secondary educational institutions, reports and publications from associations, councils, and advisory committees, and government reports of interest to the university community.

The Information Office continued to maintain a news-clipping service of activities of interest to Carleton in particular and the university in general and continued to circulate and log Carleton activities reported in newspapers across the country. No satisfactory method to monitor electronic media activities related to academic programs has been found to date. It is hoped that a column, to appear in *This Week at Carleton*, will provide a mechanism to gain a more accurate picture of activity in the broad area of communications.

This year the new quarterly publications, *Carleton Alumni News* and *Carleton University News* (initiated in 1975 to support the activities of the Alumni Fund Council and the Development Office), were well received and contributed in part to increased financial support of the Carleton University campaign.

Development Office

Carleton's development programs received gifts totalling \$757,393.64 during the 1976-77 year.

Major emphasis was given by the Development Office to Carleton's five-year campaign for \$5½ million. By the end of April, 1977, the campaign had received 6,143 gifts

and pledges totalling \$2,780,012.49. A great debt of thanks is owed by the university to the many volunteers who are so actively involved in assisting the campaign. Of special satisfaction in the campaign progress is the considerable number of new scholarships and bursaries that have been generated by the campaign and which are greatly needed at Carleton.

During the year the Development Office assumed total responsibility for the operation of the Alumni Fund together with the major task of alumni records maintenance. Carleton now has 22,000 alumni and records are maintained on all of these graduates. The Development Office processed 2,092 address changes of graduates and traced 987 alumni whose addresses had not been originally available. A major new program in the Alumni Fund, the Carleton Club, was introduced under the leadership of the chairman of the Alumni Fund Council. The Carleton Club consists of alumni who donate \$100 or more each year and will provide a most important base of support for the university in the years to come.

The Development Office was responsible for the operation of a number of memorial funds during 1976-77; these included the Betty Nesbitt Memorial Fund, the Richard Semple Memorial Fund, the James Nolan Memorial Fund, and the Robert Fleming Memorial Fund, together with a number of other similar funds which were already in progress.

The Development Office continued its liaison with lawyers and other professionals in the estate-planning field in support of Carleton's bequest program. Staffing was provided to the Associates of Carleton, and this important body of friends of the university continues its growth and support of Carleton.

The Development Office provided support to faculties and departments and individual faculty members in the search for special grants and, in particular, continued its activity as a central clearing-house for foundation approaches.

In co-operation with the Information Office, a quarterly development news bulletin was produced and distributed to donors and other friends of the university, together with a similar quarterly bulletin to the alumni of the university.

Donations to Carleton's development programs during the years were as follows:

The Carleton University Campaign	\$ 628,157.54
Special Grants	19,499.11
Bequests	109,736.99
	<hr/>
	\$ 757,393.64

Office of Planning Analysis and Statistics (OPAS)

Created in 1974 as the university's research office, OPAS has since that time assumed a myriad of responsibilities, including:

- The annual production of the official university enrol-

ment figures and projections, together with all statistical reports concerning student-related data

- The production and release of statistical reports to governmental, governmental affiliated, and interuniversity bodies such as Statistics Canada, the Ministry of Colleges and Universities (MCU), the Ontario Council on University Affairs (OCUA), and the Council of Ontario Universities (COU)
- The generation of data in response to internal requests by academic and administrative departments, as well as committees of Senate and members of the university's administration
- The maintenance of the university's space information system and liaison with COU on the matter of space inventory and entitlement.
- Consultation on the development of all data systems at Carleton and the development of data elements for use in planning
- The development of the budget plan for the university

Enrolment reporting constitutes one of the most significant functions of the office since close to 80 percent of the university's operating income consists of grants based on the university's enrolment. In 1976-77 the enrolment operating procedures were extensively reviewed in order to implement the ministry's new regulations concerning precision levels.

Annually the office publishes a data book which outlines statistics on the university's students, personnel, finances, and space. In addition to the *Data Book*, OPAS regularly produces internal reports dealing with such matters as income and resource distribution, student and course enrolments, section sizes, grade distribution, space allocation and entitlements, together with various reports comparing the characteristics of Ontario universities.

External requests for information beyond the official enrolment counts come in the form of requests from the Ontario Council on University Affairs for information as part of the university's annual brief to council. In 1976-77 a summary of university enrolment and basic income unit projections to the year 1981 was provided, as well as certain financial information and space statistics. An additional submission to OCUA was also made on qualifying year at Carleton and this, of course, required that detailed statistics be provided on qualifying-year students and courses.

The director of the office, as a member of a COU subcommittee on enrolment statistics and projections, is also called upon to assist in studies of the pattern of enrolment within and among Ontario universities in making projections of enrolment for the Ontario university system.

The university, through its Office of Planning Analysis and Statistics, is also required to supply information to COU for the ministry and to OCUA on the space it utilizes for instruction, research, and administration. The allocation of capital funding has been made by means of "ministerial discretion" ever since the imposition of the near moratorium

on capital grants. Consequently, the needs of the individual universities need to be documented accurately in order to receive serious consideration in a time of severe financial constraint. In order to provide more useful and timely data, a revised space information system is being developed.

Internal requests for information received by OPAS are many and varied, ranging from departmental requests for enrolment data for use in such activities as Advisory Committee on Academic Planning (ACAP) assessments, to student requests for data required for projects and research papers, to the budgetary data requests of the Senate Budget Review Committee, to the financial, enrolment, and staffing data requested by the Senate Academic Planning Committee in its review of areas of potential program development, program proposals, and program revisions, to requests from the university administrative officers, to requests from professional bodies outside the university. In 1976-77 this included the following projects:

- Provision of longitudinal data on students by part-time and full-time status for the Department of Psychology
- Compilation of data on various aspects of the university budget for Senate's Budget Review Committee
- Provision of secretarial assistance for the Senate Academic Planning Committee and the provision of student-related data on proposals for undergraduate programs in mass communication and criminology and corrections, the annual review of January admissions at Carleton, the enrolment study subcommittee, and the committee's review of academic departments
- Preparation of the Instructional Resources Formula, 1976-77, for the Senate Academic Planning Committee and, for the work of the committee in its academic review, the generation of an additional four to five alternative versions of the formula
- Preparation of statistics on academic staff on campus for the academic year; financial planning models based on various enrolment assumptions; analyses of the effect of differential fees on the university's income; academic career planning reports; and salary rationalization
- Generation of various data for use in the negotiations between the university and the various unions on campus
- Responses to a number of data requests from engineering professional associations, as well as regular requests from the press

The office's consultant role in the development of all new data systems involved it in three major projects during 1976-77: the development of the general ledger system now in use at the university; the development of a revised university student information system (USIS) and university annual report (UAR) system; and the creation of a sessional lecturer information system.

And, finally, the director of the office was responsible for developing the budget plan for the university on which the final budget for the year was based.

Deans, Directors and Chairmen 1976-77

Faculty of Arts

Dean James Downey		
Art History, Department of	Chairman	D.G. Burnett
Canadian Studies, Institute of	Director	A.D. Dunton
Classics, Department of	Chairman	D.G. Beer
Comparative Literature, Committee on	Chairman	C.A. Marsden
English, Department of	Chairman	James Steele
French, Department of	Chairman	Harry Clive
German, Department of	Chairman	Basil Mogridge
History, Department of	Chairman	P.J. King
Italian, Department of	Chairman	Ross Larson
Journalism, School of	Director	G.S. Adam
Linguistics, Department of	Chairman	W.G. Cowan
Music, Department of	Chairman	Alan Gillmor
Philosophy, Department of	Chairman	Stephen Talmage
Religion, Department of	Chairman	S.G. Wilson
Russian, Department of	Chairman (acting)	G.R. Barratt
Spanish, Department of	Chairman	Ross Larson

Faculty of Social Sciences

Dean R.A. Wendt		
Commerce, School of	Director	J.B. Waugh
Economics, Department of	Chairman	N.H. Lithwick
Geography, Department of	Chairman	T.P. Wilkinson
International Affairs, School of	Director	Michael Fry
Law, Department of	Chairman	K.G. McShane
Political Science, Department of	Chairman	Robert Jackson
Psychology, Department of	Chairman	Marilyn Marshall
Public Administration, School of	Director (acting)	V.S. Wilson
Social Work, School of	Director	S.J. Albert
Sociology and Anthropology, Department of	Chairman	Dennis Forcece
Soviet and East European Studies, Institute of	Chairman	C.H. McMillan
Paterson Centre	Director	P.E. Uren

Faculty of Arts, St. Patrick's College

Dean J.T. O'Manique

Faculty of Science

Dean J.L. Wolfson		
Biochemistry, Committee on	Chairman	K.W. Joy

Biology, Department of	Chairman	J.M. Neelin
Chemistry, Department of	Chairman	C.H. Amberg
Geology, Department of	Chairman	J.M. Moore
Integrated Science Studies, Committee on	Chairman	Stewart Peck
Mathematics, Department of	Chairman	Donald Dawson
Physics, Department of	Chairman	R.L. Clarke

Faculty of Engineering

Dean M.C. de Malherbe		
Architecture, School of	Director	Douglas Shadbolt
Civil Engineering, Department of	Chairman	John Adjeleian
Electronics, Department of	Chairman	A.R. Boothroyd
Industrial Design, School of	Director	Willem Gilles
Mechanical and Aeronautical Engineering, Department of	Chairman	H.I.H. Saravanamuttoo
Systems Engineering and Computing Science, Department of	Chairman	D.C. Coll

Faculty of Graduate Studies and Research

Dean Gilles Paquet

Carleton University
(Incorporated without share capital under the laws of Ontario)

Balance Sheet as at April 30, 1977

Assets

	1977	1977	1977	1976
	Unrestricted (academic and ancillary operations)	Restricted (endowment, loan, and other funds)	Total	Total
CURRENT ASSETS				
Temporary investments	\$ 172,218	\$ 3,719,523	\$ 3,891,741	\$ 3,475,027
Accounts receivable	1,069,692	16,378	1,086,070	1,183,007
Student loans receivable		30,666	30,666	45,700
Inventories				
Bookstore	438,159		438,159	481,955
Supplies	378,981		378,981	329,300
Prepaid expenses	102,672		102,672	92,523
	2,161,722	3,766,567	5,928,289	5,607,512
INVESTMENTS				
Held for endowment funds				
Marketable securities (quoted market value 1977—\$1,388,344; 1976—\$1,309,800)		1,383,854	1,383,854	1,303,508
Other shares, at par		300,000	300,000	300,000
Held for loan funds				
Marketable securities (quoted market value 1977—\$341,881; 1976—\$338,071)		336,551	336,551	320,267
Faculty mortgages receivable	98,014		98,014	124,188
	98,014	2,020,405	2,118,419	2,047,963
PROPERTY, PLANT, AND EQUIPMENT	105,678,474		105,678,474	103,470,772
	\$107,938,210	\$ 5,786,972	\$113,725,182	\$111,126,247

NOTE: The format of the balance sheet differs from previous statements.

Liabilities and Fund Balances

	1977	1977	1977	1976
	Unrestricted (academic and ancillary operations)	Restricted (endowment, loan, and other funds)	Total	Total
CURRENT LIABILITIES				
Bank advances arising from outstanding cheques	\$ 491,808		\$ 491,808	\$ 1,000,546
Accounts payable and accrued liabilities	2,185,240		2,185,240	2,329,046
Deferred income	36,114		36,114	97,139
Deposits on residence accommodation	26,200		26,200	26,670
Unexpended specific research grants		\$ 1,683,788	1,683,788	1,144,420
	2,739,362	1,683,788	4,423,150	4,597,821
LONG-TERM LIABILITIES				
Contract payable (note 4)	650,947		650,947	921,103
Mortgages payable (note 5)	5,279,084		5,279,084	5,312,873
Debentures payable (note 6)	53,260,027		53,260,027	53,876,119
	59,190,058		59,190,058	60,110,095
FUND BALANCES				
Academic and ancillary operations	774,591		774,591	593,371
Endowment, loan, and other funds		4,103,184	4,103,184	3,846,087
	774,591	4,103,184	4,877,775	4,439,458
Plant fund	45,234,199		45,234,199	41,978,873
	46,008,790	4,103,184	50,111,974	46,418,331
	\$107,938,210	\$ 5,786,972	\$113,725,182	\$111,126,247

Carleton University

Statement of Income and Expenditure

For the year ended April 30, 1977

	Unrestricted			Restricted		
	Academic		Ancillary	Endowment, Loan, and Other Funds		Total
	1977	1976	1977	1976	1977	1976
Income						
Fees	\$ 7,249,537	\$ 7,267,265	\$ 7,249,537	\$ 7,267,265	\$ 7,249,537	\$ 7,267,265
Government grant for operating purposes	34,037,429	29,197,632	34,037,429	29,197,632	34,037,429	29,197,632
Other government grants	4,126,543	4,085,814	4,126,543	4,085,814	4,126,543	4,085,814
Research grants						
Interest					\$ 3,397,388	\$3,387,322
Gifts and bequests					882,490	601,794
Miscellaneous	530,526	429,714	530,526	429,714	487,320	466,561
Ancillary enterprises			\$ 7,531,058	\$ 6,806,683	71,091	76,560
	45,944,035	40,980,425	7,531,058	6,806,683	7,531,058	6,806,683
Expenditure						
Academic						
Administrative	28,419,105	25,693,240	28,419,105	25,693,240	28,419,105	25,693,240
Operation and maintenance of property	3,186,545	2,507,473	3,186,545	2,507,473	3,186,545	2,507,473
Student awards	5,228,485	4,262,643	5,228,485	4,262,643	5,228,485	4,262,643
Library					983,804	753,065
Miscellaneous	3,549,505	2,965,066	3,549,505	2,965,066	3,549,505	2,965,066
Debtenture interest	1,056,687	1,013,675	1,056,687	1,013,675	1,056,687	1,013,675
Research grants	3,668,943	3,652,214	3,668,943	3,652,214	3,668,943	3,652,214
Municipal taxes					3,397,388	3,387,322
Ancillary enterprises	457,600	433,600	457,600	433,600	457,600	433,600
	45,566,870	40,527,911	7,727,003	6,554,481	7,727,003	6,554,481
			7,727,003	6,554,481		
			53,293,873	47,082,392	4,381,192	4,140,387
EXCESS OF INCOME OVER EXPENDITURE	\$ 377,165	\$ 452,514	\$ 252,202	\$ 704,716	\$ 257,097	\$ 391,870
(EXPENDITURE OVER INCOME)					\$ 438,317	\$ 1,096,586

Student Enrolment Comparative Summary

1974-75, 1975-76, 1976-77

	1974-75	1975-76	1976-77	1975-76 Change	to 1976-77 % Change
Full-time Students	8448	9120	9216	96	1.1
Part-time Students	6034	6927	7188	261	3.8
Summer School	5196	5665	6053	388	6.8
Full-time Undergraduates	7679	8124	8234	110	1.4
Part-time Undergraduates	5368	6139	6352	213	3.5
Full-time Graduates	769	996	982	(14)	(1.4)
Part-time Graduates	666	788	836	48	6.1
Full-time Undergraduates by Degree Program					
Bachelor of Architecture	279	287	307	20	7.0
Bachelor of Arts	4598	4709	4675	(34)	(0.7)
Bachelor of Music	17	20	30	10	50.0
Bachelor of Journalism	482	487	532	45	9.2
Bachelor of Commerce	476	563	630	67	11.9
Bachelor of Science	1010	1059	979	(80)	(7.6)
Bachelor of Engineering	658	787	828	41	5.2
Bachelor of Industrial Design	43	71	96	25	35.2
Full-time Undergraduates by Year					
Qualifying Year	479	490	326	(164)	(33.5)
I	2386	2510	2625	115	4.6
II	1929	2075	2123	48	2.3
III	1831	1866	1945	79	4.2
IV and V	938	1042	1058	16	1.5
Undergraduate Degrees and Certificates Awarded	2010	1958	1931	(27)	(1.4)
Graduate Degrees and Diplomas Awarded	293	292	374	82	28.1
Undergraduate Course Enrolments	48068	51101	51380	279	0.5
Graduate Course Enrolments	2879	3733	3738	5	0.1



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